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RECORD OF DECISION

SOURCE CONTROL OPERABLE UNIT

Site 01 - McAllister Point Landfill
Naval Education and Training Center
Newport, Rhode Island

DECISION SUMMARY FOR THE RECORD OF DECISION

Site 01 - McAllister Point Landfill
Naval Education and Training Center
Newport, Rhode Island

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DECISION SUMMARY FOR THE RECORD OF DECISION

Site 01 - McAllister Point Landfill
Naval Education and Training Center
Newport, Rhode Island

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DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Site 01 - McAllister Point Landfill
Naval Education and Training Center (NETC)
Newport, Rhode Island

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected source control remedial action for Site 01 - McAllister Point Landfill, at the Naval Education and Training Center (NETC) located in Newport, Rhode Island. This decision document was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Through this document, the Navy plans to remedy the threat to human health and the environment posed by the presence of the landfill through the implementation of a source control action. This decision is based upon the contents of the Administrative Record for Site 01. The administrative record is available at the Naval Education and Training Center in Newport, Rhode Island.

Both the United States Environmental Protection Agency and the Rhode Island Department of Environmental Management concur with the selected remedial action. *community? URI?*

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present a current or potential threat to human health and the environment.

DESCRIPTION OF THE SELECTED REMEDY

This remedy is the first of two operable units for the site and addresses source control. A management of migration operable unit will subsequently be developed for the site. The selected remedy addresses remediation of the source of contamination at the McAllister Point Landfill site by eliminating or reducing the risks posed by the presence of the landfill at the site. This action is intended to be the permanent source control remedy for Site 01 and will be combined with a management of migration remedial alternative at a later date, if required. A Record of Decision will be issued for the management of migration operable unit prior to the commencement of construction of the source control operable unit remedial action.

The major components of the selected remedy include:

- Capping of the site with a RCRA Subtitle C multi-layer cap.
- Landfill gas controls to manage landfill gas migration.
- Surface controls to minimize erosion and manage runoff.

- Use of fencing and deed restrictions to control site access and future site use.
- Provisions for conducting additional studies, including determining if additional measures, beyond capping, must be taken to reduce the amount of ground water in contact with the contaminated materials of the landfill; the nature and extent of ground water contamination and whether additional measures, beyond capping, are necessary to meet federal or state ground water standards and to reduce to acceptable levels any unacceptable risks to human health or the environment from ground water contamination; whether hot spots within the landfill materials, if present, will need to be addressed by a separate remedial action or can be addressed by the landfill cap; and the nature and extent of any near-shore sediments which have been affected by site-related contamination, and whether they will need to be addressed by a separate remedial action or whether they can be addressed through consolidation under the landfill cap.
- Five-year review.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, and is cost-effective. This source control remedial action utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. The selected remedy does not satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element because treatment of the entire landfill area is impracticable. The selected remedy will reduce mobility of contaminants through its containment features. Because this remedy will result in contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the Navy will review the remedial action to the extent required by law, to assure that it continues to protect human health and the environment.

The foregoing represents the selection of a remedial action by the Department of the Navy and the U.S. Environmental Protection Agency, Region I, with concurrence of the Rhode Island Department of Environmental Management. Concur and recommend for immediate implementation:

By: 
Captain N. J. Pattarozzi

Date: 9/24/95

Title: Captain, U.S. Navy
Commanding Officer
Naval Education and Training Center
Newport, Rhode Island

The foregoing represents the selection of a remedial action by the Department of the Navy and the U.S. Environmental Protection Agency, Region I, with concurrence of the Rhode Island Department of Environmental Management.

By: Paul Keough
Paul G. Keough

Date: 9-27-93

Title: Acting Regional Administrator, Region I, USEPA

DECISION SUMMARY

I. SITE NAME, LOCATION AND DESCRIPTION

The U.S. Naval Education and Training Center (NETC) Newport is a National Priorities List (NPL) site. There are currently four areas of contamination (AOC) and six study areas (SAs) within NETC Newport that are under investigation. This Record of Decision (ROD) relates to the presence of the existing landfill area at McAllister Point as a source of contamination.

Portions of the NETC facility are located in Newport, Middletown, and Portsmouth, Rhode Island. The facility layout is long and narrow, following the shoreline of Aquidneck Island for nearly 6 miles bordering Narragansett Bay. A facility location map is provided on Figure 1. McAllister Point Landfill is located in the central portion of the facility, in the town of Middletown, Rhode Island, as shown in Figure 2.

The McAllister Point Landfill site covers approximately 11.5 acres and is situated between Defense Highway and Narragansett Bay. Penn Central Railroad tracks run in a north-south direction along the eastern side of the site, parallel to Defense Highway. Access to the site is from Defense Highway in the south-central portion of the site. The layout of the site is depicted in Figure 3.

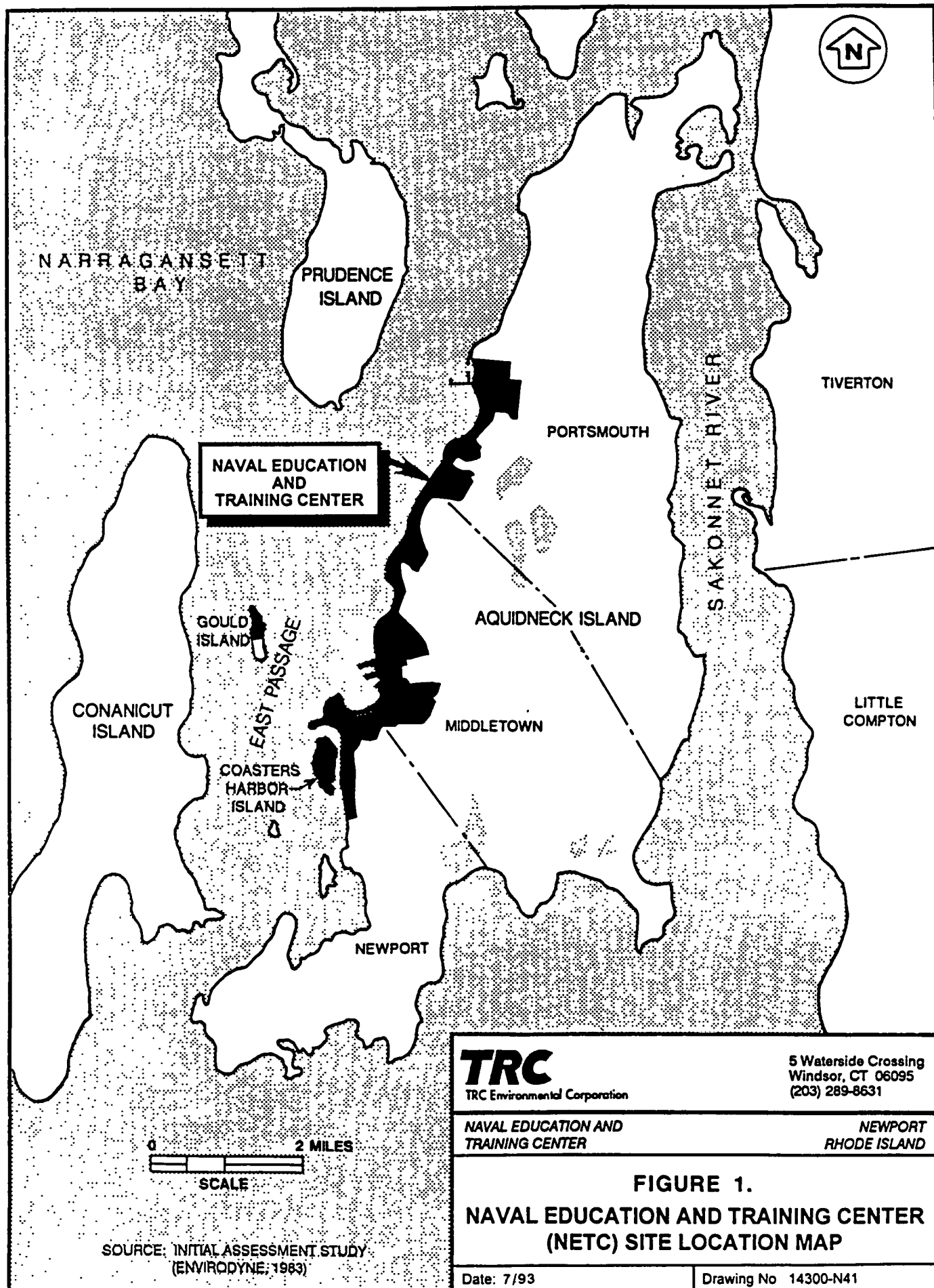
Grass, weeds, and small trees cover most of the site. A small, lightly wooded area is present in the north-central portion of the site. A more mature wooded area is located near the northeastern edge of the site between the railroad tracks and Defense Highway. Several depressions are present in the central portion of the site where standing water collects during heavy precipitation events. A wetlands evaluation summary has been conducted at the site and is available as part of the Administrative Record. The Flood Insurance Rate Map (FEMA, 1984) which covers the site and surrounding area indicates the shoreline of the site lies within the 100-year coastal flood area. The western edge of the site along Narragansett Bay is a coastal bank that rises 10 to 15 feet above Mean Low Water. The areas of 100-year coastal flood in the vicinity of the site is 12 feet, and wave action may reach 17 feet. At high tide the beach is only about 10 feet in width while at low tide it may be as much as 50 feet wide. Metal debris and concrete rubble are present along the shoreline of the landfill. The presence of the concrete rubble and debris appears to have decreased the potential for erosion of the shoreline landfill slopes.

A more complete description of the site can be found in the Draft Final Focused Feasibility Study (FFS) on pages 1-10 and 1-11 (TRC, 1993).

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

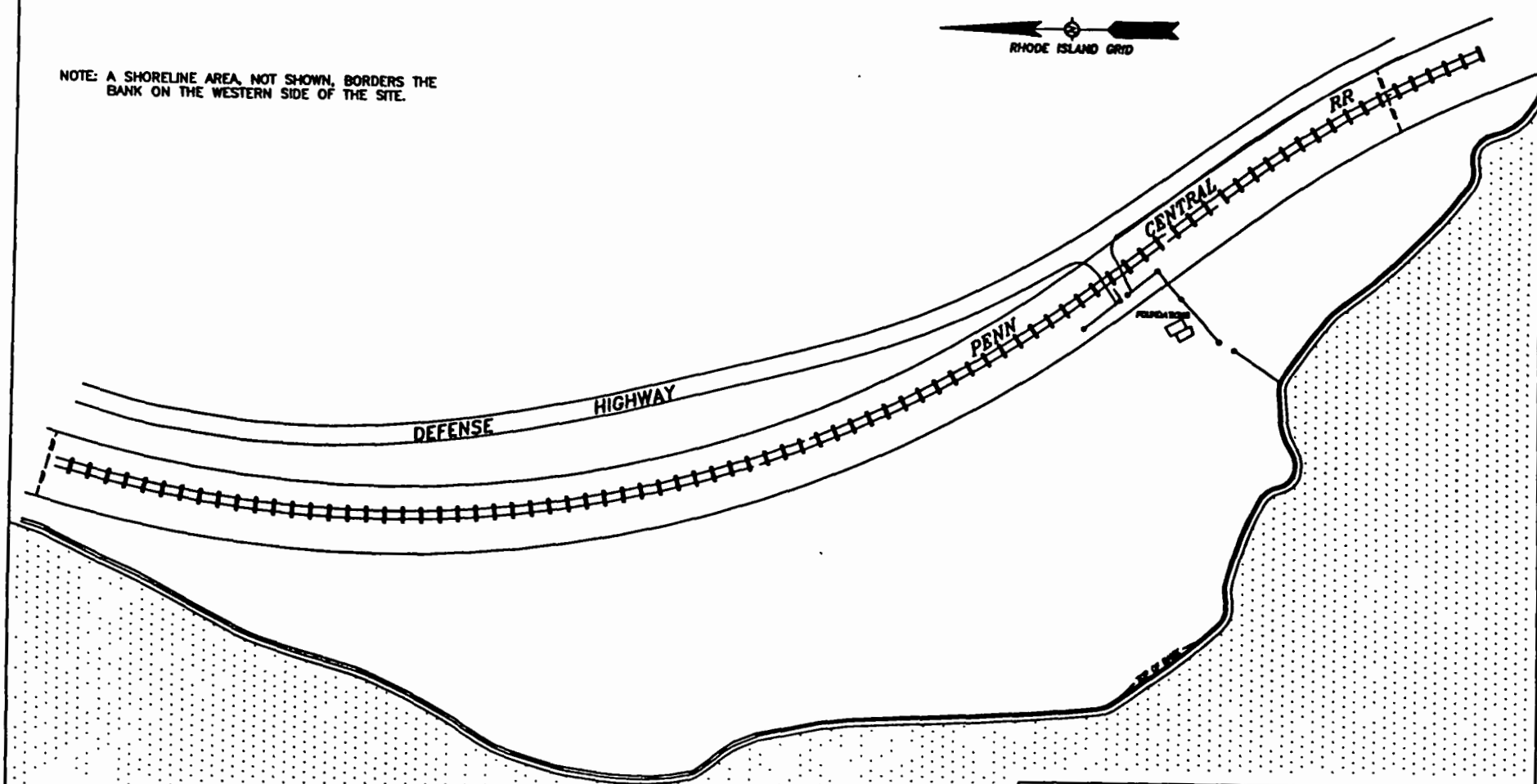
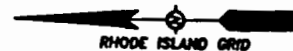
A. LAND USE AND RESPONSE HISTORY

McAllister Point Landfill was the site of a sanitary landfill which operated over a 20-year period. From 1955 until the mid-1970's, the site accepted all wastes generated at the Naval complex. The landfill received waste from all operational areas (machine shops, ship repair, etc.), Navy housing areas (domestic refuse), and from the 55 ships homeported at Newport prior to 1973 (approximately fourteen 40-cubic yard containers each day). The materials disposed of at the site reportedly included spent acids, paints, solvents, waste oils (diesel, lube, and fuel), and polychlorinated biphenyl (PCB)-contaminated transformer oil.

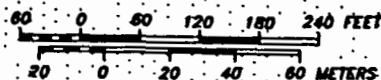


TRC TRC Environmental Corporation		5 Waterside Crossing Windsor, CT 06095 (203) 269-8631
NAVAL EDUCATION AND TRAINING CENTER		NEWPORT RHODE ISLAND
<p align="center">FIGURE 2. McALLISTER POINT LANDFILL SITE LOCATION MAP</p>		
Date: 7/93	Drawing No 14300-N41	

NOTE: A SHORELINE AREA, NOT SHOWN, BORDERS THE BANK ON THE WESTERN SIDE OF THE SITE.



NARRAGANSETT BAY



TRC
TRC Environmental Corporation

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Windsor, CT 06095
(203) 289-8631

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RHODE ISLAND

McALLISTER POINT LANDFILL

FIGURE 3.
SITE PLAN

Date: 7/93

Drawing No. 14300-N41

During the period of 1955 through 1964, wastes were trucked to the site, spread out with a bulldozer, and covered. In 1965, an incinerator was built at the landfill. From 1965 through 1970 to 1971, approximately 98 percent of all the wastes were burned before being disposed of in the landfill. The incinerator was closed around 1970 due to the resultant air emissions. During the remaining years that the site was operational, all wastes were again disposed of directly into the landfill. Based on a review of aerial photographs of the site covering the period from 1965 through 1975, a change in the shape of the shoreline in the central portion of the site is evident, indicating filling of Narragansett Bay in this area.

Following the closure of the landfill at McAllister Point, a three-foot thick covering of clay/silt was reportedly placed over the site. Current observations confirm the presence of a clay/silt material over portions of the landfill, although it is not continuous over the entire landfill area. Since the closure of the landfill, the site has remained inactive.

A more detailed description of site use and history for Site 01 can be found in the FFS Report at pages 1-10 and 1-11 (TRC, 1993).

B. ENFORCEMENT HISTORY

In response to the environmental contamination which has occurred as a result of the use, handling, storage, or disposal of hazardous materials at numerous military installations across the United States, the Department of Defense (DOD) has initiated investigations and cleanup activities under the Installation Restoration (IR) Program. The IR Program parallels the Superfund program and is conducted in several stages, including:

1. Identification of potential hazardous waste sites;
2. Confirmation of the presence of hazardous materials at the site;
3. Determination of the type and extent of contamination;
4. Evaluation of alternatives for cleanup of the site;
5. Proposal of a cleanup remedy;
6. Selection of a remedy; and
7. Implementation of the remedy for the cleanup of the site.

An Initial Assessment Study (IAS) was completed in March 1983, detailing historical hazardous material usage and waste disposal practices at NETC Newport. Following the IAS, a Confirmation Study (CS) was conducted and included environmental sampling and analysis to verify the presence of contamination at the site.

On November 21, 1989, NETC Newport was placed on the USEPA's National Priorities List. The investigation and cleanup of Site 01 is funded through the Defense Environmental Restoration Account (DERA).

In March 1992, a Federal Facility Agreement (FFA) was entered into by the U.S. Navy, the U.S. Environmental Protection Agency (USEPA) and the Rhode Island Department of Environmental Management (RIDEM) for the cleanup of hazardous substances pursuant to CERCLA. The FFA sets forth the roles and responsibilities of each agency, contains deadlines for investigation and cleanup of the hazardous waste sites, and establishes a mechanism to resolve disputes between the agencies.

III. COMMUNITY PARTICIPATION

Throughout the facility's history, community concern and involvement has been fairly low. The Navy has kept the community and other interested parties apprised of site activities through informational meetings, press releases, public meetings and Technical Review Committee (TRC) meetings.

In July 1990, the Navy released a community relations plan which outlined a program to address community concerns and to keep citizens informed about and involved during remedial activities.

The TRC meetings have been an important vehicle for community participation. The TRC meeting group was established in 1988 and is comprised of the Navy, USEPA, RIDEM, and various community representatives. The community members of the TRC include representatives from Newport, Middletown and Portsmouth. The TRC meets every two to three months, reviews the technical aspects of the facility investigation and remediation program, and provides community input to the program.

The Administrative Record, a file which is maintained and contains all information considered and relied upon by the Navy to make its decision on the selection of a response action under CERCLA, is available for public review at the Naval Education and Training Center in Newport, Rhode Island. Information Repositories, which contain files available for public review which include current information on technical reports and reference documents regarding the site, are maintained at the following locations: the Newport Public Library, the Middletown Free Library and the Portsmouth Free Public Library Association. The Navy published a notice and brief analysis of the Proposed Plan in the Newport Daily News on August 3 and August 4, 1993 and in the Providence Journal Bulletin on August 4, 1993 and made the plan available to the public at the previously listed public libraries. Notices of a change in location of the public hearing and public meeting were printed in the Newport Daily News on August 23 and August 24, 1993 and in the Providence Journal Bulletin on August 25, 1993.

On August 25, 1993, the Navy held an informational meeting to discuss the results of the field investigation activities, as described in the Remedial Investigation Technical Report, and the cleanup alternatives presented in the Draft Final Focused Feasibility Study, and to present the Navy's Proposed Plan. Also during this meeting, representatives from the Navy, TRC Environmental Corporation, USEPA, and RIDEM were available to answer questions from the public about McAllister Point Landfill and the proposed remedial alternative. From August 4, 1993 to September 3, 1993, the Navy held a 30-day public comment period to accept public comment on the alternatives presented in the Draft Final Focused Feasibility Study and the Proposed Plan and on any other documents addressing the McAllister Point Landfill site previously released to the public. Immediately following the informational meeting on August 25, 1993, the Navy held a public hearing to accept formal comments on the Proposed Plan. A transcript of this hearing is included in the attached responsiveness summary. Both verbal and written comments were received regarding the Proposed Plan. These comments and the Navy's responses to these comments are presented in the Responsiveness Summary attached as Appendix B.

IV. SCOPE AND ROLE OF RESPONSE ACTION

The selected remedy described herein is a source control alternative. In summary, the remedy provides containment and isolation of the landfill contents, the control of leachate generation as a result of infiltration, protection against surface erosion and landfill gas migration, and the performance of additional site investigations. It addresses the principal threats to human health and the environment posed by the site and is intended to be the permanent source control remedy for the site. Management of contaminant migration at the McAllister Point Landfill site will be addressed within a second operable unit. Management of migration

remedial alternatives will be developed and evaluated following the completion of additional field investigations at the McAllister Point Landfill site. The Record of Decision for the management of migration operable unit will be issued prior to the commencement of the source control operable unit.

V. SUMMARY OF SITE CHARACTERISTICS

Section 1.5 of the Draft Final FFS Report (TRC, 1993) contains an overview of the site investigations conducted at the McAllister Point Landfill site. The significant findings of the site investigations are summarized below.

A Confirmation Study (CS) including environmental sampling and analysis was conducted from 1984 to 1985 to verify the presence of contamination at the McAllister Point Landfill site. The CS included the collection of soil, leachate and ground water samples from the site as well as sediment and mussel samples from Narragansett Bay. The analysis of a composite surface soil sample collected from the landfill cover material indicated that low levels of contamination (inorganics and phenols) may be associated with the existing landfill cap. Samples of leachate seeping from the western edge of the landfill exhibited metals, cyanide, phenol, and some other organic constituents. Sediment and blue mussel samples were collected along the landfill shore and at two background locations several miles north and south of the site, respectively. The presence of inorganic contaminants was detected in sediment samples collected adjacent to the site, especially near the southern end of the landfill, with levels decreasing with distance from the site. Inorganics were also present in mussel samples. PCBs were detected in mussel samples but appeared to be attributable to bay-wide contamination, on the basis of similar levels detected in the background mussel samples. Site ground water samples exhibited elevated levels of metals. While the CS results indicated that the presence of the landfill had resulted in apparent impacts to ground water and sediment quality, the study did not define whether the landfill was continuing to contribute contaminants into Narragansett Bay and, if it was, the potential migration pathways by which the contamination was reaching the bay.

Additional sediment and mussel sampling was conducted by the U.S. Army Corps of Engineers in the portion of Narragansett Bay adjacent to McAllister Point Landfill in January 1988. Mussel and sediment samples were collected and analyzed for metals. The sediment samples were also analyzed for PCBs and total petroleum hydrocarbons (TPH). All three chemical types were detected in the sediment samples, with concentrations in sediment samples collected adjacent to the landfill consistently at least one order of magnitude greater than those detected in the control sample. Copper, chromium, zinc and PCBs were detected in some of the mussel samples at concentrations greater than were detected in the control sample.

A Phase I RI was conducted at McAllister Point Landfill from 1989 to 1990. The general purposes of the overall investigation were to:

- determine the presence, nature and extent of contamination resulting from historic site activities, including on-site and off-site impacts to soils, ground water, surface water, sediment and biota;
- identify potential contaminant migration routes;
- identify potential receptors of site contaminants; and
- characterize related environmental impacts and potential human health risks.

For a detailed assessment of the Phase I RI investigation refer to the Final RI Technical Report, which is included in the Administrative Record. A Phase II RI is planned to further investigate the site.

The Navy implemented a field sampling program to evaluate the site which included site geophysical surveys, and the collection and chemical analysis of surface soil, subsurface soil, leachate, and ground water samples.

Volatile organic compounds (VOCs), base neutral/acid extractable organic compounds (BNAs) (including polynuclear aromatic hydrocarbons (PAHs)), pesticides, PCBs, and inorganics were all detected in on-site soils. The major areas of the site where contaminants were detected in the soil at elevated levels include the following:

- Northern area - Carcinogenic PAHs;
- North-central area - BNAs, carcinogenic PAHs, and inorganics;
- Central landfill area - VOCs, BNAs, PCBs and inorganics;
- South of access road - BNAs, carcinogenic PAHs, and inorganics; and
- Shoreline - BNAs, carcinogenic PAHs, and inorganics.

The overburden at the site consists of fill and glacial till deposits. The fill material generally consists of three broad categories of waste: domestic-type refuse, industrial/construction (demolition) waste, and incinerator ash. The central, mounded portion of the landfill may be characterized by the presence of domestic-type refuse (e.g., plastic, paper, garbage). The remainder of the site generally consists of waste typical of building demolition debris (e.g., wood, metal, brick, concrete, etc.). Incinerator ash is present within the northwestern portion of the site and a single location in the southern part of the site.

Under the ground water investigation, samples were collected from eight new monitoring wells and three existing monitoring wells. Two of the new wells were screened in bedrock while the remaining wells were screened in the overburden. VOCs, BNAs, PCBs and inorganics were all detected in ground water samples. A thin oil layer was observed floating on the ground water surface in one monitoring well located in the southern portion of the site. The major areas of the site where contaminants were detected at levels exceeding drinking water standards include the following:

- Northern area - inorganics;
- North-central area - inorganics;
- Central landfill area - VOCs, and inorganics; and
- South of access road - VOCs, PCBs, and inorganics.

The presence of VOCs in ground water samples and soil samples collected at the depth of the water table over the north-central to southern portions of the site indicates the potential for ground water contamination throughout this area. The ground water samples collected from the deep bedrock wells generally indicated that deep ground water quality has not been impacted, with the exception of the detection of benzene at a concentration of 1 part per billion (ppb) in one deep well.

VI. SUMMARY OF SITE RISKS

In November 1991, a risk assessment was prepared on the basis of Phase I Remedial Investigation results for the McAllister Point Landfill site to estimate the probability and magnitude of potential adverse human health effects from exposure to constituents associated with site use. The risk assessment followed a four-step process: 1) constituent identification, which identified those constituents, which given the specifics of the site, were of potential concern; 2) exposure assessment, which identified current or potential future land uses, receptor populations, and exposure pathways, and determined the extent of potential exposures; 3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with each constituent of potential concern, and 4) risk characterization, which integrated the three earlier steps to summarize the potential and

actual risks posed by constituents at the site, including carcinogenic and non-carcinogenic risks. The results of the risk assessment for the McAllister Point Landfill site are summarized below.

The constituents of potential concern selected for evaluation in the risk assessment for the McAllister Point Landfill site are listed in Table A-1 found in Appendix A of this Record of Decision. These constituents of potential concern were identified through an evaluation of the data for all three media at the site (i.e., surface soils, subsurface soils and ground water) and constitute a representative subset of the 150 constituents identified at the site during the Phase I Remedial Investigation. The constituents of potential concern were selected to represent potential site-related hazards based on constituent type, toxicity, concentration, frequency of detection, and mobility and persistence in the environment. A summary of the range of concentrations in each media is provided in Table A-2 of this Record of Decision, while a summary of the health effects associated with each of the constituents of potential concern can be found in Appendix F of the Phase I RI Risk Assessment Report.

Potential risks associated with exposure to the constituents of potential concern were estimated quantitatively or qualitatively through the development of several hypothetical exposure scenarios. These scenarios were developed to reflect the potential for exposure to site constituents based on current or potential future land uses and on the location of the site. Since the site is not presently in active use, trespassing was the only current land use scenario evaluated in the risk assessment. Future land uses which were considered plausible during the development of the risk assessment include recreational use of the site, on-site construction activities, commercial/industrial use of the site, and residential site use. The following is a brief summary of the exposure scenarios evaluated in the risk assessment. A more thorough description of these scenarios can be found in Section 2.3 of the Phase I RI Risk Assessment Report.

Under the current trespassing scenario, referred to as Scenario 1, it was assumed that children aged 9 to 18 years and living within the immediate vicinity of the site may be exposed to constituents while trespassing on the site. Exposure was assumed to occur through incidental ingestion of and dermal contact with surface soil at a frequency of 21 days per year (i.e., approximately one day per week during the summer and less frequently during the school year). A soil ingestion rate of 100 mg of soil per day and a dermal contact rate of 500 mg of soil/day were used to evaluate these two pathways, respectively.

Under the future recreational use scenario (Scenario 2), it was assumed that ball fields were constructed on-site for public recreational use. As a result, children from ages 6 to 18 years old were assumed to receive dermal and ingestion exposures to constituents in surface soil. It was assumed that children would visit the ball fields 104 days/year (five days per week in the summer and less frequently during the spring and fall). It was further assumed that the children would ingest 100 mg soil/day and dermally contact soil at a rate of 500 mg soil/day.

Under the future construction use scenario (Scenario 3), it was assumed that construction workers involved in site development would be exposed to site constituents through incidental ingestion of and dermal contact with soil (to a depth of 12 feet), and inhalation of fugitive dust. Exposure was assumed to occur for 250 days over a one year period. Specific assumptions for each exposure pathway included a soil ingestion rate of 480 mg soil/day, a dermal contact rate of 500 mg soil/day, and an inhalation rate of 20 m³ of air/workday which assumes moderate exertion.

Under the future commercial/industrial use scenario (Scenario 4), it was assumed that adult employees of a commercial/industrial business established on the site would be exposed to surface soil contamination through incidental ingestion (50 mg soil/day) and dermal exposure (500 mg soil/day) and to contaminated ground water through ingestion (1 liter water/day). Employees were assumed to be exposed for 250 days per year for 25 years.

Under the future residential use scenario (Scenario 5), risks to children and adults were evaluated separately. Children (aged 0 to 6 years) and adults (over a period of 30 years) were assumed to receive exposures to constituents in surface soil through incidental ingestion, dermal contact, and inhalation of airborne particulates. Child and adult residents were also assumed to ingest ground water and to inhale volatile organic constituents released into bathroom air during showering. These exposures were assumed to occur 350 days/year for 6 years for children and over a 30-year period for adults. Children were assumed to ingest 0.75 liters water/day and 200 mg soil/house dust per day, while for adults these values were 2 liters water/day and 100 mg soil/house dust per day. Other exposure assumptions for children and adults included a dermal contact rate of 500 mg soil/day, an inhalation rate of 20 m³ air/day for fugitive dust, and an inhalation rate of 0.6 m³ air/hour for inhalation of constituents while showering. The length of a shower was assumed to be 12 minutes.

For each exposure pathway and land use evaluated, an average and a reasonable maximum exposure estimate (RME) was generated for each constituent of potential concern corresponding to exposure to the average and the maximum concentrations detected in the relevant medium.

Excess lifetime cancer risks were determined for each exposure pathway by multiplying the exposure level by the constituent-specific cancer slope factor. Cancer slope factors have been developed by EPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic constituents. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g. 1×10^{-6} for 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater than a one in a million chance of developing cancer over 70 years as a result of site-related exposure as defined to the constituent at the stated concentration. Current EPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of constituents.

The hazard index (HI) was also calculated for each pathway as EPA's measure of the potential for non-carcinogenic health effects. The HI is a sum of the constituent-specific hazard quotients (HQs) which are calculated by dividing the exposure level by the reference dose (RfD) or other suitable benchmark for non-carcinogenic health effects for an individual constituent. RfDs have been developed by EPA to protect sensitive individuals over the course of a lifetime and they reflect a daily exposure level that is likely to be without an appreciable risk of an adverse health effect. RfDs are derived from epidemiological or animal studies and incorporate uncertainty factors to provide margins of safety between the RfD and the observed effect level. The hazard quotient is often expressed as a single value (e.g. 0.3) indicating the ratio of the stated exposure as defined to the reference dose value (in this example, the exposure as characterized is approximately one third of the target exposure level for the given constituent). The hazard quotient should only be considered additive for constituents that have the same or similar toxic endpoint (for example, the hazard quotient for a constituent known to produce liver damage should not be added to a second constituent whose toxic endpoint is kidney damage).

Risk estimates were evaluated using EPA's established target risk range for Superfund cleanups (i.e., cancer risk range of 1×10^{-6} to 1×10^{-4}) and target HI value (i.e., HI less than or equal to 1). A conservative approach was taken where risks from all exposure pathways and all constituents were summed to yield the total site risk for a given receptor.

Table A-3 depicts the carcinogenic and non-carcinogenic risk summary for exposures to constituents of potential concern in soil under current (and potential future) trespassing at the site (Scenario 1). Both the average and RME estimates of total risk fell below or within the target cancer risk range for Superfund cleanups established by EPA (i.e., 1×10^{-6} to 1×10^{-4}) and below EPA's target HI value of 1.0.

Table A-4 depicts the carcinogenic and non-carcinogenic risk summary for exposures to constituents of potential concern in soil under future recreational use of the site (Scenario 2). Both the average and RME estimates of total non-carcinogenic risk fell below 1.0. While the average total cancer risk fell within the 1×10^{-6} to 1×10^{-4} range, the RME estimate exceeded 1×10^{-4} . Incidental ingestion of carcinogenic polynuclear aromatic hydrocarbons (PAHs) in soil accounted for most of the elevated RME cancer risk estimate.

Table A-5 depicts the carcinogenic and non-carcinogenic risk summary for exposures to constituents of potential concern in soil under future construction activities at the site (Scenario 3). With the exception of the RME estimate of total non-carcinogenic risk, the estimated total HIs and cancer risks fell within target levels. The RME estimate of total non-carcinogenic risk exceeded 1.0 as a result of incidental ingestion of antimony in soil.

Table A-6 depicts the carcinogenic and non-carcinogenic risk summary for exposures to constituents of potential concern in soil and ground water under future commercial/industrial use of the site (Scenario 4). With the exception of the RME estimate of total carcinogenic risk, the estimated total HIs and cancer risks for soil fell within target levels. The RME estimate of total carcinogenic risk exceeded 1×10^{-4} as a result of incidental ingestion of carcinogenic PAHs in soil. Both the average and RME estimates of total non-carcinogenic and carcinogenic risk for ground water exceeded target levels. The ground water HIs were elevated as a result of ingestion of antimony and manganese in drinking water, while ingestion of arsenic, beryllium, and carcinogenic PAHs contributed the most to the estimated cancer risks for this medium.

Table A-7 depicts the carcinogenic and non-carcinogenic risk summary for exposures to constituents of potential concern in soil and ground water under future residential development of the site (Scenario 5). For soil, the average total HI and cancer risk estimates fell within target levels, while most of the RME estimates of total risk exceeded the target levels. Incidental ingestion of antimony, copper, and zinc in soil accounted for the majority of the elevated RME estimates of non-carcinogenic risk for children. The elevated RME cancer risks for children and adults occurred as a result of incidental ingestion of carcinogenic PAHs in soil. For ground water, both the average and RME estimates of total non-carcinogenic and carcinogenic risk exceeded target levels. As shown in Table A-8, the ground water HIs were elevated as a result of ingestion of antimony, arsenic, cadmium, chromium, copper, manganese, and zinc in drinking water, while ingestion of arsenic, beryllium, vinyl chloride, 3,3'-dichlorobenzidine, and carcinogenic PAHs contributed the most to the estimated cancer risks for this medium.

Since EPA toxicity values for lead were not available, an alternative approach called the Integrated Lead Uptake/Biokinetic Model was used to evaluate potential risks from childhood lead exposures. As described in Section 2.5 of the Phase I RI Risk Assessment Report, a criterion of greater than or equal to five percent of the child population with blood lead concentrations above $10 \mu\text{g}$ lead per deciliter of blood was used. The model was run using two sets of surface soil data; one comprising all locations across the site and one limited to a zone along the Narragansett Bay shoreline where the concentrations of lead in soil were higher relative to the rest of the site. As shown in Table A-9, less than one percent of the modeled population of children were predicted to have blood lead concentrations above $10 \mu\text{g}/\text{dl}$ when the mean concentration of lead in soil across the site was used. Using either the mean or maximum soil lead concentration for the "impacted" zone, greater than five percent of the child population was estimated to have blood lead concentrations above $10 \mu\text{g}/\text{dl}$.

Uncertainties are associated with each component of the risk assessment process. In the exposure assessment, for example, uncertainties in the selection of current and potential future land uses, exposure pathways, and exposure parameter values contribute to the overall uncertainty associated with the risk estimates. Given the uncertainty associated with the site being developed for future residential use, the uncertainty in the risk estimates for this scenario is quite large. Overall, assumptions or uncertainties incorporated into this or other components of the risk assessment are expected to contribute to an overestimation of risk associated with site

use. This overestimation of risks results in a conservative approach to the evaluation of site remedial requirements, since actual risks posed by the site may be less than those calculated.

Significant uncertainties also exist for the data used in the risk assessment. These uncertainties include the following:

- Constituents detected infrequently in all media were assumed to occur across the site at an average or maximum detected concentration;
- "UJ" data (i.e., resulting from matrix effects) were included as the sample quantitation limit (SQL) in calculations of the average concentration, and considered as potential locations of contamination. As stated in EPA's comments on the risk assessment, data qualified with "UJ" indicate constituents which were analyzed for but not detected, and the associated values are estimated SQLs;
- "U" data (non-detect values) were included as one-half the SQL, used in calculation of the average concentration, and considered as potential locations of contamination; and
- Uncertainties in background sampling locations, particularly with regard to inorganic constituents, disallowed exclusion of constituents which may occur naturally at the site.

In most cases, uncertainties associated with the data (e.g., inclusion of chemicals for which only "UJ" qualified data were available) are likely to overestimate rather than underestimate the risk.

With respect to cancer risk estimates, a major uncertainty is the degree of exposure possible to vinyl chloride, 3,3'-dichlorobenzidine, and carcinogenic PAHs in drinking water. These constituents were not actually detected in ground water, but were included in the quantitative assessment on the basis of "UJ" qualified data. Cross-assignment of the slope factors for benzo(a)pyrene to the other carcinogenic PAHs likely overestimated the risks associated with exposures to these constituents in ground water and soil. Interactions between carcinogens may lead both to enhanced and diminished carcinogenic responses which also lend a degree of uncertainty to the risk estimates.

With respect to non-cancer risk estimates, the HQs for all constituents were summed to estimate the total risk for a given receptor. The elevated HIs (i.e., above 1.0) at this site were generally not caused by adding individual HQs for different constituents. Therefore, consideration of whether it is appropriate to sum HQs stemming from non-cancer effects that occur in different tissues for different constituents does not greatly increase the uncertainty in this analysis.

No environmental assessment was conducted as part of the Phase I Remedial Investigation. Previous Confirmation Studies indicated that sediments and mussels in the adjacent portion of Narragansett Bay may be impacted by the migration of constituents from the site. An off-shore sampling program will be conducted at the site and a full environmental assessment will be conducted to further define site-related impacts on the environment.

Actual or threatened releases of constituents from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment. The objective of the selected remedial action is to provide containment and isolation of the landfill contents and the control of leachate generation as a result of infiltration. Through this action, exposures to the landfill area will be limited and continued migration of contamination leached from the waste materials located within the unsaturated zone into the ground water will be minimized.

VII. DEVELOPMENT AND SCREENING OF ALTERNATIVES

A. STATUTORY REQUIREMENTS/RESPONSE OBJECTIVES

The Navy is responsible for addressing environmental contamination at the McAllister Point Landfill site pursuant to Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Federal Facility Agreement entered into by the Navy, the USEPA and RIDEM. The Navy's primary responsibility under these legal authorities is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences, including: a requirement that the remedial action, when complete, must comply with all federal and more stringent state environmental standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that a remedial action be selected that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and a preference for remedies in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. Response alternatives were developed to be consistent with these Congressional mandates.

Based on preliminary information relating to types of contaminants, environmental media of concern, and potential exposure pathways, remedial action objectives were developed to aid in the development and screening of alternatives. These remedial action objectives were developed to mitigate existing and future potential threats to human health and the environment. These remedial action objectives were:

- To minimize potential environmental impacts by minimizing off-site migration of potentially contaminated surface soils, and by limiting the infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation; and
- To minimize potential risk to human health associated with exposure to the landfill area.

B. TECHNOLOGY AND ALTERNATIVE DEVELOPMENT AND SCREENING

CERCLA and the NCP set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a focused range of source control remedial alternatives was developed for the McAllister Point Landfill site in which institutional and engineering controls were utilized to reduce the threat posed by the presence of the landfill at the site. This range also included a no action alternative. Other alternatives which address management of contaminant migration will be evaluated in a separate operable unit, upon completion of additional site investigations. The Record of Decision for the management of migration operable unit will be completed prior to the construction of the source control operable unit remedy. Because a focused feasibility study approach was used, no initial screening of alternatives was conducted. Chapter 2 of the FFS presents the remedial alternatives which were developed by combining the technologies identified in the technology and process option screening. Table 1 identifies the four alternatives which were developed for the site and which underwent detailed analysis.

TABLE 1
REMEDIAL ALTERNATIVES
SITE 01 - McALLISTER POINT LANDFILL SITE

ALTERNATIVE 1 NO ACTION

ALTERNATIVE 2 LIMITED ACTION (Fencing, Surface Controls and Deed Restrictions)

ALTERNATIVE 3 RCRA SUBTITLE D SOIL CAP WITH SURFACE AND INSTITUTIONAL CONTROLS

ALTERNATIVE 4 RCRA SUBTITLE C MULTI-LAYER CAP WITH SURFACE AND INSTITUTIONAL

VIII. DESCRIPTION OF ALTERNATIVES

This section describes the selected alternative and the other alternatives the Navy developed for detailed analysis. The numbering system used in the FFS report to distinguish between the various alternatives is referenced here. The source control alternatives analyzed for the McAllister Point Landfill site include a No-Action Alternative (Alternative 1); a Fencing, Surface Controls and Deed Restrictions Alternative (Alternative 2); a RCRA Subtitle D Soil Cap with Surface and Institutional Controls Alternative (Alternative 3); and a RCRA Subtitle C Soil Cap with Surface and Institutional Controls Alternative (Alternative 4). Detailed alternative descriptions are provided on pages 3-4, 3-6, 3-9 through 3-14 and 3-17 through 3-24 of the Draft Final FFS.

Alternative 1: No Action: This alternative was developed and evaluated in the FFS to serve as a baseline for comparison with the other remedial alternatives under consideration. Under the No Action Alternative, no active measures would be taken to reduce or to contain contamination emanating from the landfill. The alternative would not meet remedial objectives.

Alternative 2: Limited Action (Fencing, Surface Controls and Deed Restrictions): This alternative would consist of the following components:

- Fencing of the site to restrict site access;
- Improvements in site drainage and revegetation to restrict surficial erosion;
- Deed restrictions to limit future site use and development; and
- Five-year review.

Under the Limited Action Alternative, minimal active measures would be taken to reduce contamination emanating from the landfill. Surface controls in the form of drainage improvements and revegetation of bare areas of the site would be used to enhance site drainage and minimize erosion from the surface of the landfill. Institutional controls in the form of fencing and the posting of warning signs would be implemented to restrict site access. Restrictions to future site development would be incorporated to restrict future land use.

Based on the improvements to site drainage which are incorporated into this alternative, long-term storm water discharge monitoring is included. The monitoring program would be developed to meet federal and state Pollution Discharge Elimination System regulations regarding storm water discharge from a landfill site. The monitoring program would be conducted for a period of 30 years. The Navy would also review the remedial action, to the extent required by law, to assure that it continued to protect human health and the environment.

Estimated Time for Design and Construction: 3 months

Estimated Period for Operation: 30 years

Estimated Capital Cost: \$190,000

Estimated Operation and Maintenance Cost (net present worth): \$290,000

Estimated Total Cost (net present worth): \$580,000

Alternative 3: RCRA Subtitle D Soil Cap with Surface and Institutional Controls: This alternative consists of the following components:

- RCRA Subtitle D (municipal waste landfill) cap;
- Regrading of the site and drainage improvements;
- Landfill gas management;
- Reduction in grade and provision of slope protection along Narragansett Bay;
- Fencing and deed restrictions;
- Additional site investigations;
- Long-term monitoring of ground water and storm water discharge quality; and
- Five-year review.

The landfill area would be covered with a soil cap constructed in accordance with federal municipal solid waste landfill closure requirements. The cap provides a physical barrier to potential exposures to or erosion of surficial contaminants and provides some restriction of infiltration. The alternative also includes regrading of the site, improvement of drainage features, a landfill gas management system, and a reduction in grade and provision of slope protection along Narragansett Bay. Fencing and deed restrictions would be included to limit site access and future site use and development. Supplemental site investigations would be required to determine if additional measures need to be taken with respect to ground water contamination, leachate generation, landfill gas treatment, and remediation of hot spot areas and contamination sediments. If determined to be appropriate based on these additional studies, contaminated hot spot materials and/or sediments could potentially be consolidated beneath the landfill cap prior to cap construction. Ground water and storm water discharge monitoring would be conducted for a period of 30 years in accordance with federal and state regulations. The Navy would also review the remedial action, to the extent required by law, to assure that it continued to protect human health and the environment.

Estimated Time for Design and Construction: 1 to 2 years

Estimated Period for Operation: 30 years

Estimated Capital Cost: \$2,500,000

Estimated Operation and Maintenance Cost (net present worth): \$2,300,000

Estimated Total Cost (net present worth): \$5,800,000,

Alternative 4: RCRA Subtitle C Multi-Layer Cap with Surface and Institutional Controls: This alternative consists of the following components:

- RCRA Subtitle C (hazardous waste landfill) cap;
- Regrading of the site and drainage improvements;
- Landfill gas management;
- Reduction in grade and provision of slope protection along Narragansett Bay;
- Fencing and deed restrictions;
- Additional site investigations;
- Long-term monitoring of ground water and storm water discharge quality; and
- Five-year review.

The landfill area would be covered with a multi-layer cap constructed in accordance with federal and state hazardous waste landfill closure requirements. The cap provides a physical barrier to potential exposures to or erosion of surficial contaminants and restricts infiltration and the subsequent leaching of contaminants from wastes within the unsaturated zone. The alternative also includes regrading of the site, improvement of drainage features, a landfill gas management system, and a reduction in grade and provision of slope protection along Narragansett Bay. Fencing and deed restrictions would be included to limit site access and future site use and development. Additional site investigations would be required to determine if additional measures need to be taken with respect to ground water contamination, leachate generation, landfill gas treatment, and remediation of hot spot areas and contaminated sediments. If determined to be appropriate based on these additional studies, contaminated hot spot materials and/or sediments could potentially be consolidated beneath the landfill cap prior to cap construction. Ground water and storm water discharge monitoring would be conducted for a period of 30 years in accordance with federal and state regulations. The Navy would also review the remedial action, to the extent required by law, to assure that it continued to protect human health and the environment.

Estimated Time for Design and Construction: 2 years

Estimated Time of Operation: 30 years

Estimated Capital Cost: \$4,300,000

Estimated Operations and Maintenance Costs (net present worth): \$2,300,000

Estimated Total Cost (net present worth): \$8,000,000

IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 121(b)(1) of CERCLA presents several factors that, at a minimum, must be considered in the assessment of remedial alternatives. Building upon these specific statutory mandates, the National Contingency Plan (NCP) articulates nine evaluation criteria to be used in assessing the individual remedial alternatives.

A detailed analysis was performed on the alternatives using the nine evaluation criteria in order to select a site remedy. These criteria and their definitions are as follows:

Threshold Criteria

The two threshold criteria described below must be met in order for the alternatives to be eligible for selection in accordance with the NCP.

1. **Overall protection of human health and the environment** addresses whether or not a remedy protects human health and the environment both in the long-term and the short-term

from unacceptable risks posed by hazardous substances, pollutants, or contaminants present at the site by eliminating, reducing, or controlling exposures to the hazardous substances.

2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** addresses whether or not a remedy will meet all of the ARARs of other Federal environmental laws and state environmental or facilities siting laws or whether grounds for invoking a waiver are applicable.

Primary Balancing Criteria

The following five criteria are utilized to compare and evaluate the elements of those alternatives which meet the threshold criteria.

3. **Long-term effectiveness and permanence** addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.
4. **Reduction of toxicity, mobility, or volume through treatment** addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the site.
5. **Short term effectiveness** addresses the period of time needed to achieve protection and any short-term risks to human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.
6. **Implementability** addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
7. **Cost** includes estimated capital and operation and maintenance (O&M) costs, calculated as present-worth costs for comparison purposes.

Modifying Criteria

The modifying criteria are used in the final evaluation of the remedial alternatives, generally after public comment on the FFS Report and the Proposed Plan has been received.

8. **State acceptance** addresses the State's position and key concerns related to the preferred alternative and other alternatives, and the state's comments on ARARs or the proposed use of waivers.
9. **Community acceptance** addresses the public's general response to the alternatives described in the Proposed Plan and FFS report and requires a determination of which components of the alternatives interested persons in the community support, have reservations about or oppose.

Following the detailed analysis of each individual alternative, a comparative analysis, focusing on the relative performance of the alternatives against the nine criteria, was conducted. This comparative analysis can be found in Tables 3-14 through 3-20 of the FFS. The section below presents the nine criteria and a brief narrative summary of the alternatives and the strengths and weaknesses according to the detailed and comparative analysis.

Overall Protection of Human Health and the Environment

Alternative 4 (the selected alternative) would provide overall protection against exposures to the landfill area as well as minimize contaminant migration from the landfill area due to erosion and infiltration of precipitation. Alternative 3, which utilizes a soil cap, would also provide a degree of overall protection, although it would not be as effective in reducing infiltration of precipitation as Alternative 4. Alternative 2 utilizes only institutional controls and minor drainage improvements and revegetation to provide protection of human health and the environment. Alternative 1, the no action alternative, would not meet this criterion. why?

Compliance with ARARs

The proposed remedial action would meet all ARARs. Specifically, the selected alternative would comply with location-specific ARARs, including wetlands and water resources requirements, coastal zone requirements, and endangered species and cultural resource requirements, as applicable. If the landfill cap and shoreward protection features cannot be constructed within the existing extent of the landfill, mitigation actions will be taken to replace any wetlands destroyed by the remedial action, in accordance with the requirements of Section 404 of the Clean Water Act and other federal wetlands regulations. With respect to action-specific ARARs, federal and state landfill closure requirements, ARARs applicable to the venting of landfill gases, and storm water discharge requirements will be met by the selected alternative.

The remaining alternatives do not meet all ARARs. Alternative 3 would not meet hazardous waste landfill closure requirements. Alternatives 1 and 2 would permit continued impacts to wetlands and waters to occur and therefore, would not meet the requirements of the Clean Water Act.

Long-Term Effectiveness and Permanence

Alternative 4 provides the greatest degree of long-term effectiveness and permanence because the multi-layer cap design provides the greatest degree of protection against infiltration of precipitation and subsequent leachate generation. Alternative 3 is not considered as effective in the long-term because the soil cap will not be as effective a barrier to infiltration. Alternative 2, fencing, surface controls and deed restrictions, provides only minor improvements to site drainage and would have minimal impact on leachate generation. The no action alternative, Alternative 1, is not considered permanent or effective in the long term.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Due to the nature of this source control operable unit, none of the alternatives developed provide a reduction in toxicity, mobility or volume of contamination through treatment. The management of migration operable unit will consider cleanup levels and remedial options for ground water, leachate, landfill gas, hot spot areas and sediments, as appropriate.

Alternative 4 would provide the greatest reduction in the mobility of contamination through containment. This alternative includes a multi-layer cap which would provide the greatest protection against infiltration of precipitation and the subsequent generation of leachate as the precipitation would percolate through the unsaturated waste materials.

Alternative 3 provides a reduction in the mobility of contamination through the capping of the site with a soil cap, although it would not provide as much protection against infiltration of precipitation as Alternative 4. Alternative 2 provides minimal reduction in contaminant mobility through improved site drainage and

revegetation. Alternative 1, the no action alternative provides no reduction in the toxicity, mobility or volume of contaminated material.

Short-Term Effectiveness

Alternative 4 and Alternative 3 would be comparable in terms of short-term effectiveness, with similar potential short-term risks and environmental impacts associated with the construction of the landfill caps. Alternative 2 would result in fewer potential short-term human health or environmental risks during the implementation period but would not provide the same degree of protection upon completion. Alternative 1 requires no implementation and therefore results in no increase in short-term risks. However, it does not achieve remedial response objectives.

Implementability

None of the alternatives have significant barriers to implementation although the implementation considerations become more complex with the increasing complexity of the remedial action. Alternative 2 is most easily implemented from a technical standpoint, involving implementation of only minor surface controls and institutional controls. Both Alternative 3 and Alternative 4 require removal of existing vegetation, site regrading and slope protection along the western side of the site. The soil cap of Alternative 3 would be more easily constructed than the multi-layer cap of Alternative 4, which requires specialized construction methods and handling for the installation of the synthetic geomembrane.

Cost

The capital, operation and maintenance, and total costs for each alternative are provided as part of the preceding section entitled "Description of Alternatives". Alternative 1, no action, is the lowest cost alternative followed by the limited action alternative, Alternative 2. Alternatives 3 and 4 are significantly more expensive than Alternatives 1 and 2, with Alternative 4 being the highest cost alternative.

State Acceptance

As a party to the FFA, the State has reviewed and commented on the FFS and Proposed Plan and the Navy has taken the State's comments into account. The State has documented its concurrence with the selected remedial action, as presented in Section XIII of this ROD. The State's comments and outstanding concerns regarding the Phase II site investigations, Focused Feasibility Study and Proposed Plan were presented verbally at the formal public hearing for the Proposed Plan and in a subsequent comment letter. Responses to the State comments are presented in the Responsiveness Summary in Appendix B. A transcript of the public hearing is included as Attachment A to the Responsiveness Summary. A copy of the State's letter of concurrence is presented in Appendix E.

Community Acceptance

Community acceptance of the Proposed Plan was evaluated based on verbal comments received at the public hearing and on the basis of written comments received during the public comment period. This is documented in the Responsiveness Summary presented in Appendix B.

X. THE SELECTED REMEDY

For Site 01 - McAllister Point Landfill, the selected remedy is Alternative 4, consisting of a RCRA Subtitle C cap, and surface and institutional controls. The remedial action addresses source control and will be combined with a management of migration remedial action, as appropriate, to provide a comprehensive approach to site remediation.

A. CLEANUP LEVELS

ecological ?

A 10^{-6} excess cancer risk level for carcinogenic effects or a concentration corresponding to a Hazard Index of 1.0 for compounds with non-carcinogenic effects is typically used to set cleanup levels. No contaminant-specific cleanup levels have been developed for this source control remedial alternative since the alternative addresses the landfill area as the source of contamination and landfill wastes were not sampled. Although soils/waste will not be removed or treated under the selected alternative, containment technologies are generally considered appropriate for landfills where treatment is impracticable because of the volume and heterogeneity of the waste. Therefore, no Target Cleanup Levels have been set for soils at the site. Cleanup levels and remedial alternatives applicable to ground water/leachate, landfill gas, hot spot areas and contaminated sediments will be developed, as appropriate, within the management of migration operable unit for the site.

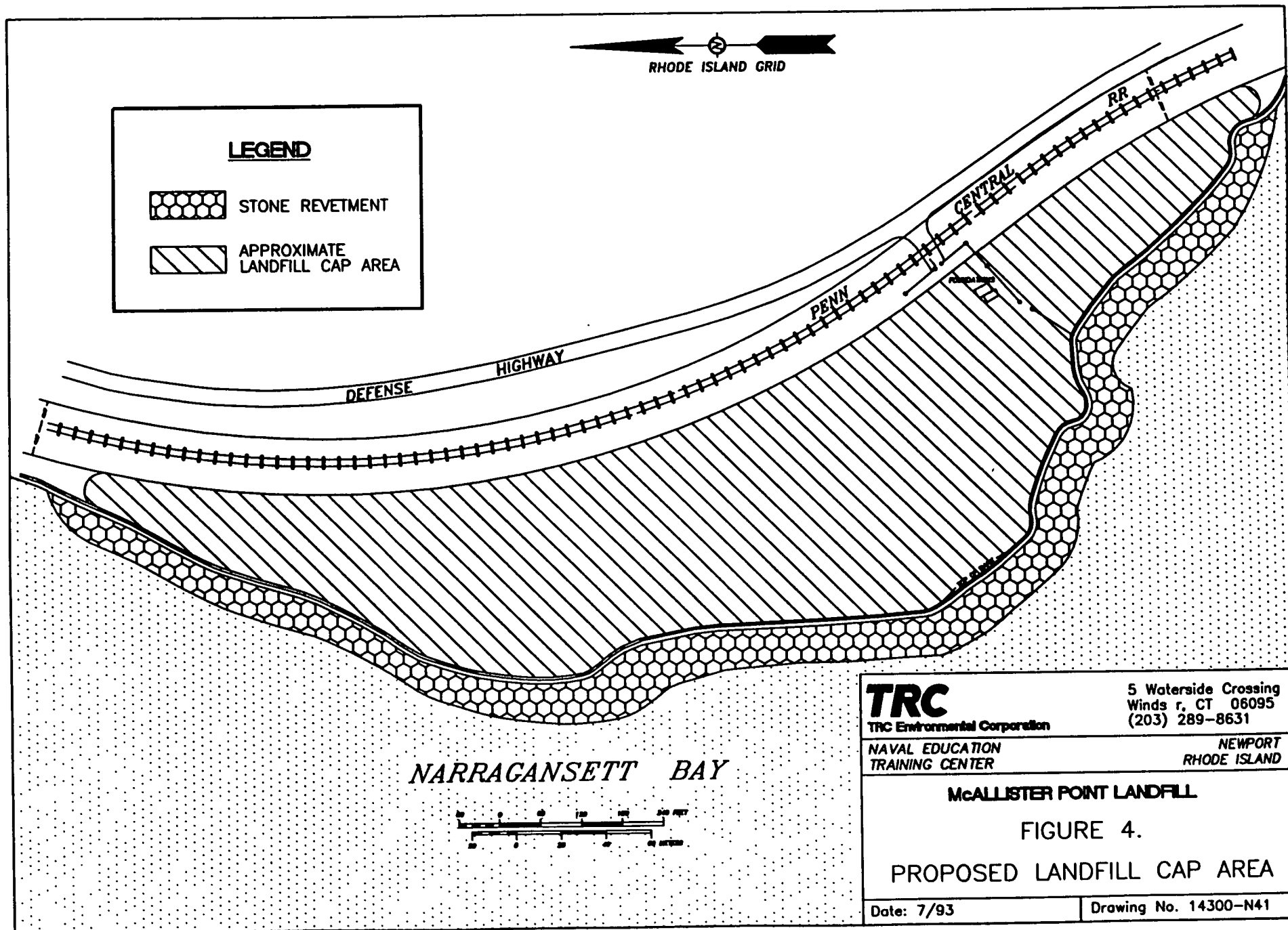
B. DESCRIPTION OF THE REMEDIAL COMPONENTS

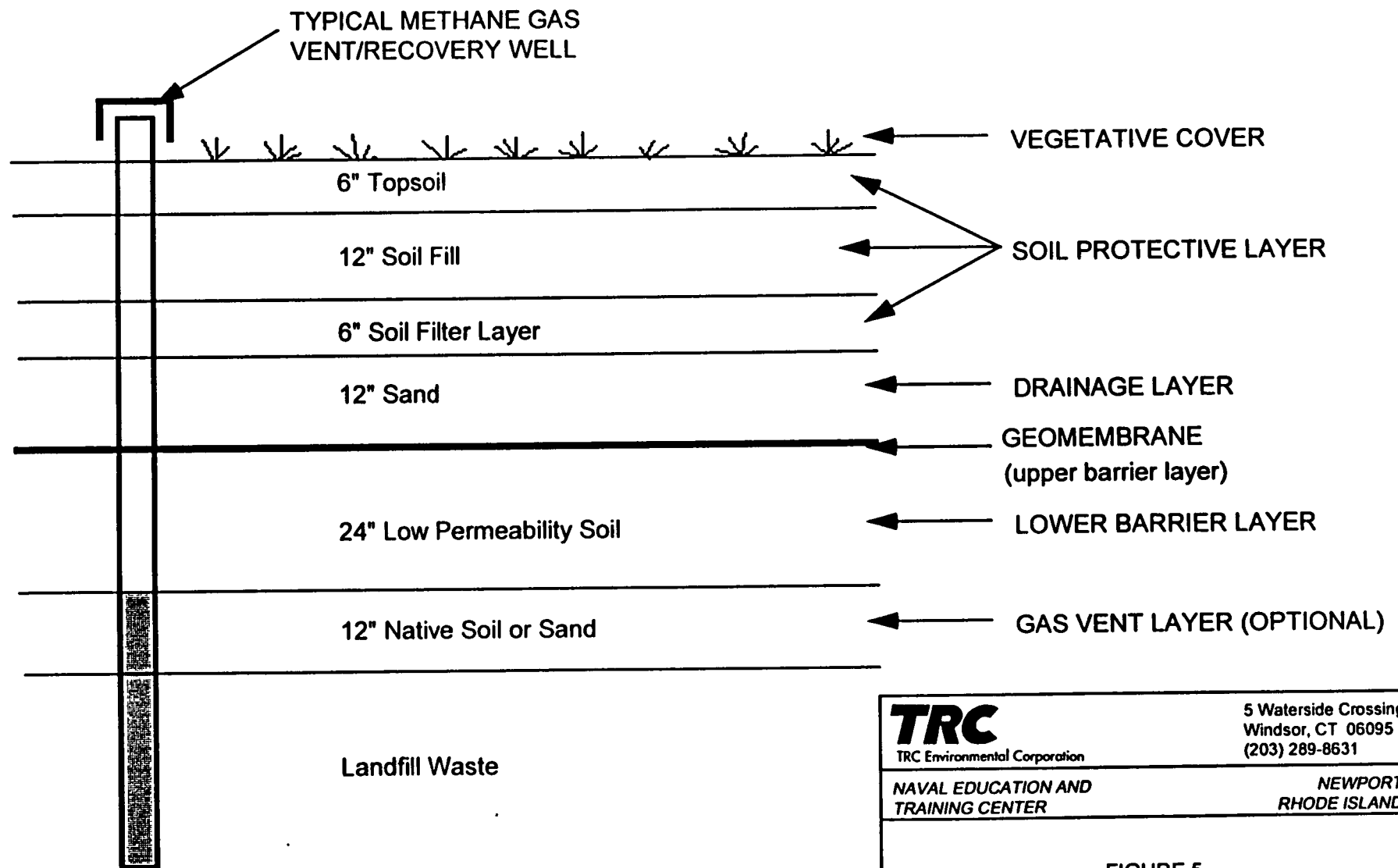
The selected alternative is designed to contain the landfill area and minimize the infiltration of precipitation through the waste materials. The alternative includes the following components:

- RCRA Subtitle C multi-layer cap;
- Landfill gas management;
- Surface controls;
- Fencing and institutional controls;
- Additional site investigations;
- Operation and maintenance and site monitoring; and
- Five-year review.

RCRA Subtitle C Multi-layer Cap

A multi-layer cap will be placed over the landfill area, as indicated in Figure 4, to limit the amount of infiltration and thereby minimize leachate production. The cap will cover approximately 10.5 acres, encompassing the landfill area at McAllister Point, including identified areas of ash, construction debris and domestic waste disposal. The cap will be designed to meet or exceed Resource Conservation and Recovery Act (RCRA) guidance as described in the USEPA documents, Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments (USEPA, 1989) and Design and Construction of RCRA/CERCLA Final Covers (USEPA, 1991), and in accordance with accepted engineering design practices. The cap will be designed to comply with the performance standard set forth in Section 14.12 of the Rhode Island Solid Waste Management Regulations which requires that the cap have a remolded coefficient of permeability of 1×10^{-7} centimeters per second. Site-specific factors will be evaluated in determining an effective cap design. A typical cover system is composed of a vegetative and protective layer, a drainage layer, an upper barrier layer consisting of a synthetic membrane, and a lower barrier layer consisting of a low permeability soil barrier. An optional gas vent layer may be placed below the lower barrier layer, if determined to be appropriate during the landfill gas management system evaluation. A conceptual cap cross-section is provided in Figure 5.




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 FIGURE 5.
 CONCEPTUAL CAP SECTION

Date: 7/93

Drawing No. 14300-N41

Landfill Gas Management

A landfill gas management system will be incorporated into the cap design. As part of the design phase, a landfill gas study will be conducted. A vapor pilot test will be conducted on wells located within the landfill area, with vapor samples collected and analyzed to determine the composition of the landfill gas. The field data will be evaluated and landfill gas extraction will be modeled to evaluate potential landfill gas extraction alternatives. The design of a landfill gas venting or extraction system will be developed based on the results of these analyses. If an active landfill gas extraction system is required, landfill gas extraction well locations will be located where possible in areas suspected to be potential "hot spot" areas.

Surface Controls

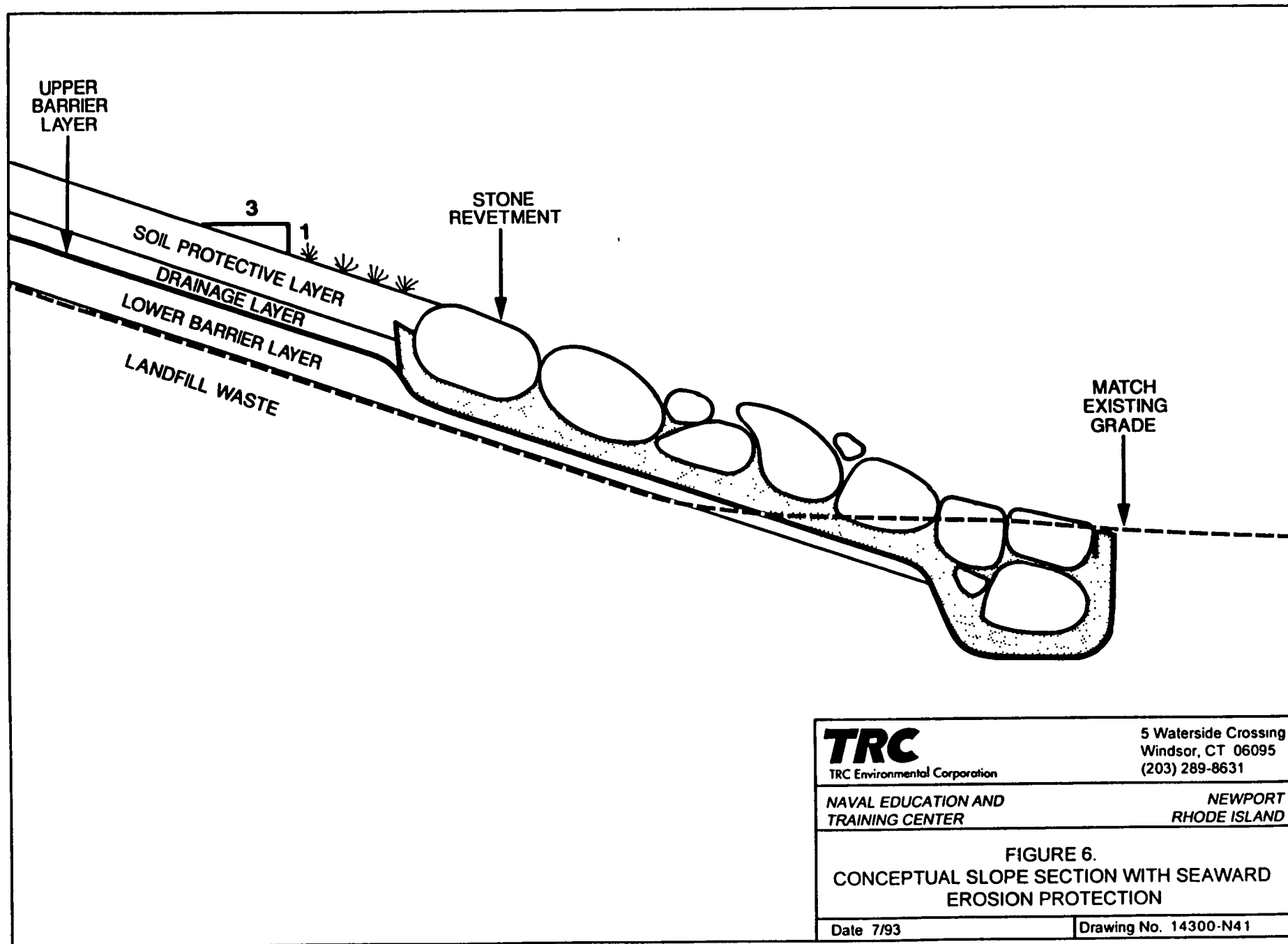
Surface controls, including grading, revegetation and slope protection will be implemented in conjunction with the multi-layer cap.

Prior to construction of the cap, the site will be regraded to eliminate depressions and steep sidewalls to the extent practicable so that precipitation will run off instead of ponding on the surface or infiltrating into the landfill and to provide stable slopes. The regraded surface will also enhance the placement of the cap materials over the landfill area, especially along the steep sidewall areas adjacent to Narragansett Bay. Contaminated near-shore sediments or "hot spot" materials may also be consolidated within the proposed cap area prior to initiation of cap construction activities.

Following cap construction, the entire cap will be seeded and/or planted to minimize erosion of the cap's surface. A revegetation analysis will be conducted during the design phase to allow development of a revegetation plan which will enhance future habitation of the site by indigenous species.

The cap and drainage system will be connected to a system of drainage swales around the landfill to control run-on and run-off. Along the western side of the landfill, bordering Narragansett Bay, additional slope armoring will be utilized to protect the landfill materials and the landfill cap from potential damage due to wave erosion, storm surges, etc. During the remedial design process, a storm surge and wave analysis will be conducted to evaluate wave energy forces along the shoreline in order to design protection of the slope. Due to the location of the site, the remedial design will also consider the effects that the tidal action and potential floods will have on the cap integrity. A stability analysis of the existing and/or any proposed modifications to the existing side slope will also be conducted during the design process. The final design of the slope protection system will be in accordance with the Army Corps of Engineers' Shore Protection Manual, and/or other appropriate guidance documents, as well as available FEMA coastal flood elevation information. Any reduction in the grade of the seaward-facing landfill slope will be designed so as to consolidate any material removed from the slope in the area to be capped and to minimize any movement of landfill material into the adjacent bay. In accordance with Section 404 of the Clean Water Act and the requirements of the Coastal Resources Management Council, the slope protection features along Narragansett Bay should not extend beyond the toeprint of the existing landfill. If during the design process it is determined that the cap cannot be constructed in accordance with this requirement, mitigation of impacted wetlands will be required. If mitigation is required, a mitigation plan will be developed and distributed for public comment prior to implementation. A conceptual slope section is provided in Figure 6.

Adjacent to the remainder of the cap's perimeter, riprap and storm water run-off control swales will be used as necessary to control run-on and run-off from the cap.

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FIGURE 6.
CONCEPTUAL SLOPE SECTION WITH SEAWARD
EROSION PROTECTION

Date 7/93

Drawing No. 14300-N41

Fencing and Institutional Controls

Fencing will be placed around the perimeter of the site to limit site access. Fencing will be combined with institutional controls to also limit future site use and development. Restrictions on land use will be implemented by NETC to prevent future use of the site.

Additional Site Investigations

Additional site investigations which will support the evaluation and determination of management of migration remedial action(s) at the site will be conducted as part of the source control remedial action. These additional studies will be designed to determine the following:

- If additional measures, beyond capping the landfill, must be taken to reduce the amount of ground water in contact with the contaminated materials of the landfill (these studies will evaluate the potential for leachate generation due to contact between the landfill materials and ground water, including the potential effects of daily, monthly, and seasonal tidal fluctuations as well as flooding events associated with the storms);
- The nature and extent of ground water contamination and whether additional measures, beyond capping the landfill, are necessary to meet federal or state ground water standards and to reduce to acceptable levels any unacceptable risks to human health or the environment from ground water contamination;
- If the vented landfill gases require treatment to protect human health and/or the environment and if the landfill gas extraction system can also be used to treat potential "hot spots" at the site;
- Whether "hot spots", including Non-Aqueous Phase Liquids (NAPLs), are present within the landfill and whether they will be addressed by a separate remedial action or by the landfill cap; and
- The nature, extent and location of near-shore sediments which may have been affected by site-related contamination and whether they will be addressed by a separate remedial action or excavated and consolidated under the landfill cap.

Such studies would be conducted in association with Phase II Remedial Investigation activities or would be included in landfill cap design studies. Based upon the results of these studies, the management of migration operable unit would include the following, as necessary:

- the treatment standards and remedial alternative(s) for vented landfill gases;
- the cleanup standards and remedial alternative(s) for hot spots within the landfill materials, if present;
- the cleanup standards and remedial alternatives(s) for contaminated ground water; and
- the cleanup standards and remedial alternative(s) for contaminated sediments.

Operation and Maintenance and Site Monitoring

Post-closure care would be conducted for thirty years, and would consist of the following components, in accordance with RCRA requirements (40 CFR Part 264, Subparts G and N):

- Maintaining the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;
- Maintaining and monitoring the ground water monitoring system and complying with other applicable requirements of 40 CFR 264 Subpart F;
- Maintaining and operating the gas control and monitoring system;
- Preventing run-on and run-off from eroding or otherwise damaging the final cover; and
- Protecting and maintaining surveyed benchmarks used in complying with 40 CFR 264.309.

Long-term ground water monitoring and storm water discharge monitoring would be conducted following capping of the landfill. The design of the monitoring systems would be defined following completion of additional ground water studies and site drainage design. The environmental monitoring program would be submitted for regulatory review and would identify the sampling locations and sampling frequencies. At a minimum the environmental monitoring program would be conducted for a period of thirty years.

The Navy will review the remedial action, to the extent required by law, to assure that it continues to protect human health and the environment. During these periodic reviews, the Navy will consider requirements that are newly promulgated if determined to be applicable or relevant and appropriate and necessary to assure that the remedy is still protective of human health and the environment.

XI. STATUTORY DETERMINATIONS

The remedial action selected for implementation at the McAllister Point Landfill site is consistent with CERCLA and with the requirements of the NCP. The selected remedy is protective of human health and the environment, attains ARARs and is cost effective. The selected remedy uses permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable for this site. However, it does not satisfy the statutory preference for treatment which permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element.

A. THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT

The remedy at the McAllister Point Landfill site will permanently reduce the risks posed to human health and the environment by eliminating, reducing or controlling exposures to human and environmental receptors through engineering controls and institutional controls. The placement of a cap will eliminate direct contact and incidental ingestion exposure to surficial soil or waste contaminants and the implementation of institutional controls will prevent exposure to contaminated soil or ground water under future site use. The cap will effectively reduce the infiltration of precipitation through unsaturated waste materials and the resultant generation of leachate. The selected remedy will comply with ARARs and to-be-considered criteria. Finally, the implementation of the selected remedy will not pose unacceptable short-term risks or cross-media impacts.

B. THE SELECTED REMEDY ATTAINS ARARS

This remedy will attain all Applicable or Relevant and Appropriate federal and state requirements (ARARs) that apply to the McAllister Point Landfill site and this remedial action. Environmental laws from which ARARs for the selected source control remedial action are derived, and the specific ARARs are presented in tabular form in Appendix C and are summarized below.

Chemical-Specific ARARs

No chemical-specific ARARs are applicable to the selected remedial action.

Location-Specific ARARs

- Executive Order 11988 and 11990; Statement on Proceedings of Floodplain Management and Wetlands Protection (40 CFR 6, Appendix A)
- Clean Water Act Section 404 (40 CFR 230.10) Requirements for Discharge of Dredge or Fill Material
- Rivers and Harbors Act (Section 10) Prohibition of Filling a Navigable Water
- Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661) Protection of Wildlife Habitats
- Endangered Species Act of 1973 (16 U.S.C. 1531) Protection of Endangered Species
- National Historic Preservation Act of 1966 (16 U.S.C. 470, et seq.) Protection of Historic Lands and Structures
- Archaeological and Historic Preservation Act of 1974 (132 CFR 229 & 229.4, 43 CFR 7 & 7.4); Historic Sites, Building and Antiquities Act
- Rhode Island Wetlands Laws (RIGL 2-1-18 et seq.); Rhode Island Department of Environmental Management Rules Governing the Enforcement of the Freshwater Wetlands Act - as amended Dec. 21, 1986
- Rhode Island Coastal Resources Management Law (RIGL, Title 46, Chapter 23) and Regulations

Action-Specific ARARs

- RCRA (40 CFR 264) Subtitle C Requirements:
 - 40 CFR 264.10-264.18 Subpart B - General Facility Standards
 - 40 CFR 264.30-264.37 Subpart C - Preparedness and Prevention
 - 40 CFR 264.50-264.56 Subpart D - Contingency Plan and Emergency Procedures
 - 40 CFR 264.90-264.101 Subpart F - Ground Water Protection
 - 40 CFR 264.110-118 Subpart G - Closure/Post Closure Requirements
 - 40 CFR 264.301-264.310 Subpart N - Landfill Requirements
- Migratory Bird Treaty Act (16 U.S.C. 703-712)
- Clean Water Act Section 404 (40 CFR 230.10) Requirements for Discharge of Dredged or Fill Material
- Rivers and Harbors Act (Section 10) Prohibition of Wetland Filling

- Clean Air Act:
 - Section 5-171 through 178, 42 USC §§ 7471-7478 (Requirements for Non-Attainment Areas)
 - Section 5-160 through 169A - Prevention of Significant Deterioration Provisions
- Clean Water Act (40 CFR 122-125) National Pollutant Discharge Elimination System (NPDES) Permit Requirements
- RI Hazardous Waste Management Act of 1978 (RIGL 23-19.1 et seq.) Hazardous Waste Management Rules and Regulations and Proposed Amendments:
 - Section 7
 - Section 8
 - Section 9
 - Section 10
- RI Rules and Regulations for Solid Waste Management Facilities
 - Section 14.12 (relating to landfill cover permeability standards)
- RI Clean Air Act (RIGL, Title 23, Chapter 23) General Air Quality and Air Emissions Requirements
 - RI Air Pollution Control Regulations, RI Dept. of Health, Div. of Air Pollution Control, effective 8/2/67, amended 5/20/91
 - Regulation No. 1 - Visible Emissions
 - Regulation No. 5 - Fugitive Dust
 - Regulation No. 7 - Emissions Detrimental to Person or Property
 - Regulation No. 15 - Control of Organic Solvent Emissions
 - Regulation No. 17 - Odors
 - Regulation No. 22 - Air Toxics
- RI Water Pollution Control Act
 - RI Water Quality Regulations for Water Pollution Control (RIGL 46-12 et seq.)
 - RI Regulations for the Pollutant Discharge Elimination System (RIPDES) (RIGL 46-12 et seq.)

The following action-specific policies, criteria and guidelines were also considered:

- RCRA Proposed Rule 52 FR 8712 - Proposed Amendments for Landfill Closures
- EPA Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments (EPA 530-SW-89-047)
- Clean Air Act (40 CFR 50) New Source Performance Standards (NSPS) Proposed Subpart WWW 56 FR 24468-24528 (5/30/91)
- Clean Air Act (40 CFR 61) National Emissions Standards for Hazardous Pollutants (NESHAPS)

Federal Location-Specific Regulations - The federal location-specific regulations that apply to the selected remedy are mainly based on the site's location adjacent to Narragansett Bay. Executive Orders 11988 and 11990 require the avoidance of long- and short-term impacts associated with the destruction of wetlands and the occupancy and modifications of floodplains and wetlands whenever there is a practicable alternative. Similarly,

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material to a water of the United States if there is a practicable alternative which poses less of an adverse impact or if it causes significant degradation of the water. The Rivers and Harbors Act prevents filling of a navigable water. The Fish and Wildlife Coordination Act of 1958 requires consultation with federal and state conservation agencies during planning and the decision-making process for any action which may impact water bodies, including wetlands, as well as consideration of prevention, mitigation or compensation measures. These standards are applicable to cap construction and slope protection activities which impact wetland, floodplain or coastal areas. Remedial designs will be developed to minimize adverse impacts to these areas. If adverse impacts to wetland areas cannot be avoided as part of the selected remedy, appropriate mitigating actions will be taken.

The Endangered Species Act of 1973 is a potential ARAR for activities which could impact endangered or threatened wildlife species. Information provided by the RIDEM Natural Heritage Program, Division of Planning and Development, indicates that no rare plants, rare animals, or ecologically significant natural communities have been identified in the vicinity of McAllister Point Landfill. An environmental assessment to be conducted during the Phase II RI, prior to cap construction, will also include a consultation of U.S. Fish and Wildlife Service information to further evaluate the potential presence of endangered species in the vicinity of the site. The National Historic Preservation Act of 1966 and the Archaeological and Historic Preservation Act of 1974 govern the preservation of historic, scientific and archaeological sites. Remedial actions must be coordinated with preservation agencies and societies to minimize loss of significant scientific, prehistoric, historic or archaeological data.

State Location-Specific Requirements - The state location-specific regulations that apply to the selected remedy are based on the site's location adjacent to Narragansett Bay. The Rhode Island Wetlands Laws define and establish provisions for the protection of swamps, marshes and other freshwater wetlands. The Rhode Island Coastal Resources Management Law and Regulations set standards and regulations for the management and protection of coastal resources. These standards are applicable to cap construction and slope protection activities which impact wetland and coastal areas. Remedial designs will be developed to minimize adverse impacts to these areas. If adverse impacts to wetland areas cannot be avoided as part of the selected remedy, appropriate mitigating actions will be taken.

Federal and State Action-Specific Requirements - Many portions of RCRA and Rhode Island Hazardous Waste Management Regulations are relevant and appropriate to site closure, since the wastes reportedly disposed of at the site are sufficiently similar to known, listed RCRA wastes.

The substantive requirements of RCRA General Facility Standards, Preparedness and Prevention, and Contingency Plan and Emergency Procedures will be attained during remedial construction activities. RCRA Subpart F - Ground Water Protection stipulates ground water monitoring and corrective action requirements and establishes points of compliance. A ground water monitoring program will be implemented which will adhere to these requirements. Sections of Subpart G (Closure and Post-Closure Requirements) and Subpart N (Landfills) which define landfill closure requirements are relevant and appropriate to the capping and long-term monitoring of the site. RCRA Proposed Amendments for Landfill Closures and EPA Technical Guidance on Final Covers on Hazardous Waste Landfills and Surface Impoundments will be considered in the final design of the cap and development of the post-closure monitoring plan. The cap will also be designed in accordance with the permeability standards set forth in Section 14.12 of the Rhode Island Solid Waste Management Regulations. Section 404 of the Clean Water Act will affect the design of the final cover, as discussed previously under the Location-Specific requirements.

Landfill cap construction and closure monitoring will be conducted in accordance with the applicable portions of Sections 7, 8, 9 and 10 of the Rhode Island Hazardous Waste Management Rules and Regulations and Proposed Amendments.

Portions of Section 5 of the Clean Air Act may be applicable or relevant and appropriate to the venting of landfill gas from the site. Monitoring and modeling would be required to determine if these requirements are applicable or relevant and appropriate. Venting of landfill gases will also be conducted in accordance with Regulations 1, 5, 7, 15, 17 and 22 of the Rhode Island Air Pollution Control Regulations.

Clean Water Act NPDES requirements and Rhode Island Water Quality Regulations for Water Pollution Control and RIPDES requirements will be applicable to the discharge of storm water from the site. A storm water monitoring program will be developed to meet these requirements.

It is also noted that, although the requirements, standards and regulations of the Occupational Safety and Health Act of 1970 are not ARARs, they will be complied with in connection with McAllister Point remedial activities, where applicable.

C. THE SELECTED REMEDIAL ACTION IS COST-EFFECTIVE

In the Navy's judgement, the selected remedy is cost effective (i.e., the remedy affords overall effectiveness proportional to its costs). In selecting this remedy, once the Navy identified alternatives that are protective of human health and the environment and that attain ARARs, the Navy evaluated the overall effectiveness of each alternative by assessing the relevant three criteria -- long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness -- in combination. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs. The costs of this remedial action are:

- Estimated Capital Cost: \$4,200,000
- Estimated Operation and Maintenance Costs (net present worth): \$2,300,000*
- Estimated Total Cost (net present worth): \$8,000,000*

* The net present worth is based on a 5% discount factor and 30 years of operation; the estimated total cost includes a 20% contingency factor.

The selection of this alternative represents a reasonable value in regard to the degree of protectiveness offered by the alternative in comparison with the other alternatives evaluated. While the selected alternative is the most expensive alternative, it will be the most effective alternative in limiting future leachate generation as a result of infiltration of precipitation. While the need for remediation of ground water contamination will be evaluated on the basis of additional site investigations within the management of migration operable unit for the site, it is anticipated that if a remedial action is required under that operable unit, the overall effort and expense associated with that action will be reduced if infiltration is effectively removed as a source of leachate generation. Therefore, the increased capital cost associated with this alternative may be offset later by a decrease in the overall operation and maintenance cost of a management of migration remedial action.

D. THE SELECTED REMEDY UTILIZES PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE

Once the Navy identified those alternatives that attain ARARs and that are protective of human health and the environment, the Navy identified that alternative which utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified source control alternatives provides the best balance of trade-offs among alternatives in terms of: 1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility or volume through treatment; 3) short-term effectiveness; 4) implementability; and 5) cost. The balancing test emphasized long-term effectiveness and permanence and the reduction of toxicity, mobility and volume through treatment; and considered the preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and community and state acceptance. The selected alternative provides the best balance of trade-offs among the alternatives.

The selected alternative offers the greatest degree of long-term effectiveness and permanence based on its use of a multi-layer barrier to prevent infiltration of precipitation. Due to the nature of the site (i.e., the implementability problems and prohibitive costs which would be associated with treatment of the entire landfill area), treatment was not found to be a practicable source control option at the site. Therefore, none of the source control alternatives evaluated in the FFS included a treatment component to reduce mobility, toxicity or volume. The selected alternative is comparable to the other alternatives in terms of short-term effectiveness, and although it is slightly more difficult to implement and is slightly more costly than the soil cap alternative, it was found to provide the best balance of trade-offs among the alternatives considered, with long-term effectiveness and permanence being the major determining factor in the selection process.

E. THE SELECTED REMEDY DOES NOT SATISFY THE PREFERENCE FOR TREATMENT WHICH PERMANENTLY AND SIGNIFICANTLY REDUCES THE TOXICITY, MOBILITY OR VOLUME OF THE HAZARDOUS SUBSTANCES AS A PRINCIPAL ELEMENT

The selected remedy does not satisfy the statutory preference for treatment as a principal element due to the impracticability of treating the landfill area (i.e., the implementability problems and prohibitive costs which would be associated with treatment of the entire landfill). The selected remedy includes the provision for conducting additional site investigations which will provide the basis for determining if treatment of principal threats (e.g., hot spot areas or contaminated sediments), landfill gas or ground water is required.

XII. DOCUMENTATION OF NO SIGNIFICANT CHANGES

On August 4, 1993, the Navy released the Proposed Plan for the source control remedial action at the McAllister Point Landfill site. The preferred alternative included the capping of the landfill area with a RCRA Subtitle C multi-layer cap, landfill gas management, surface controls, fencing and institutional controls, additional site investigations, and operation and maintenance and site monitoring. Since the remedial action is identical to the remedy proposed in the Proposed Plan, no significant changes need to be addressed.

XIII. STATE ROLE

The Rhode Island Department of Environmental Management (RIDEM) has reviewed the various alternatives and has indicated its support for the selected remedy. The State has also reviewed the Remedial Investigation Technical Report and the Focused Feasibility Study to determine if the selected remedial action is in compliance with applicable or relevant and appropriate state environmental laws and regulations. In response to State

comments on the Proposed Plan, the permeability standards of Section 14.12 of the Rhode Island Solid Waste Management Regulations have been incorporated herein as an ARAR. As a party to the FFA, Rhode Island concurs with the selected remedy for the source control action at the McAllister Point Landfill site. A copy of the letter of concurrence is attached as Appendix E.

APPENDIX A
RISK ASSESSMENT TABLES
Site 01 - McAllister Point Landfill
NETC - Newport, Rhode Island

TABLE A-1
CONSTITUENTS OF POTENTIAL CONCERN
MCALLISTER POINT LANDFILL

INORGANICS	VOLATILES	SEMIVOLATILES	PESTICIDES	PCBs
Antimony	Benzene	Acenaphthene	Aldrin	Aroclor-1016
Arsenic	Bromodichloromethane	Acenaphthylene	BHC, alpha-	Aroclor-1221
Beryllium	Bromoform	Anthracene	BHC, beta-	Aroclor-1232
Cadmium	Carbon Tetrachloride	Benzo(a)anthracene	BHC, delta-	Aroclor-1242
Chromium	Chlorobenzene	Benzo(a)pyrene	BHC, gamma-	Aroclor-1248
Cobalt	Chloroform	Benzo(b)fluoranthene	Chlordane, alpha-	Aroclor-1254
Copper	Chloromethane	Benzo(ghi)perylene	Chlordane, gamma-	Aroclor-1260
Lead	Dibromochloromethane	Benzo(k)fluoranthene	DDD, 4,4'-	
Manganese	Dichloroethane, 1,2-	Bis(2ethylhexyl)phthalate	DDE, 4,4'-	
Mercury	Dichloroethene, 1,1-	Butylbenzylphthalate	DDT, 4,4'-	
Nickel	Dichloroethene, 1,2-	Chrysene	Deildrin	
Selenium	Dichloropropane, 1,2-	Dibenzofuran	Endosulfan I	
Zinc	Ethylbenzene	Dibenzo(a,h)anthracene	Endosulfan II	
	Hexanone, 2-	Dichlorobenzene, 1,4-	Endosulfan Sulfate	
	Styrene	Dichlorobenzidine, 3,3'-	Endrin	
	Tetrachloroethane, 1,1,2,2-	Dichlorophenol, 2,4-	Endrin ketone	
	Tetrachloroethene	Diethylphthalate	Heptachlor	
	Toluene	Dimethylphthalate	Heptachlor epoxide	
	Trichloroethane, 1,1,1-	Di-n-butylphthalate	Methoxychlor	
	Trichloroethane, 1,1,2-	Di-n-octylphthalate	Toxaphene	
	Trichloroethene	Fluoranthene		
	Vinyl chloride	Fluorene		
	Xylenes	Indeno(123cd)pyrene		
		Methylnapthalene, 2-		
		Naphthalene		
		Phenanthrene		
		Phenol		
		Pyrene		
		Trichlorophenol, 2,4,5-		

TABLE A-2
RANGE OF CONCENTRATIONS FOR CONSTITUENTS OF POTENTIAL CONCERN
MCALLISTER POINT LANDFILL

		RANGE OF SURFACE SOIL CONCENTRATIONS (mg/kg)	RANGE OF SUBSURFACE SOIL CONCENTRATIONS (mg/kg)	RANGE OF GROUND WATER CONCENTRATIONS (mg/l)
INORGANICS				
Antimony		4.0-91	3.5-167	0.022-0.26
Arsenic		1.9-20	2-23	0.0021-0.089
Beryllium		0.16-1.7	0.33-2.0	0.002-0.013
Cadmium		0.8-2.0	0.57-8.6	0.003-0.057
Chromium		5.2-69	4.7-78	0.017-0.25
Cobalt		3.6-20	1.5-28	0.022-0.74
Copper		13-6070	11-1760	0.057-3.2
Lead		7.3-1980	2.1-886	0.003-4.8
Manganese		217-678	45-1300	0.058-21
Mercury		0.14-1.6	0.11-2.9	0.00032-0.0084
Nickel		3.4-105	2.7-68	0.017-0.68
Selenium		0.35-2.0	0.33-4.2	0.0025
Zinc		38-19200	18-2090	0.17-12
VOLATILES				
Benzene	X	0.008-0.009	0.004-0.006	0.001-0.006
Bromodichloromethane	X	0.008-0.009	X 0.006	X 0.005
Bromoform	X	0.008-0.009	X 0.005-0.012	X 0.005
Carbon Tetrachloride	X	0.008-0.009	X 0.006	X 0.005
Chlorobenzene		0.002-0.012	0.001-0.032	0.005-0.011
Chloroform	X	0.009	0.003-0.006	X 0.005
Chloromethane	X	0.01-0.017	X 0.012-1.7	X 0.01
Dibromochloromethane	X	0.008-0.009	X 0.006-0.012	X 0.005
Dichloroethane, 1,2-	X	0.009	X 0.006	X 0.005
Dichloroethene, 1,1-	X	0.009	X 0.006	X 0.005
Dichloroethene, 1,2-	X	0.009	0.006-0.34	X 0.005
Dichloropropane, 1,2-	X	0.008-0.009	X 0.006	X 0.005
Ethylbenzene	X	0.006-0.012	0.002-0.38	0.002-0.012
Hexanone, 2-	X	0.014-0.025	0.011-0.023	X 0.01
Styrene	X	0.006-0.012	X 0.006	X 0.005
Tetrachloroethane, 1,1,2,2-	X	0.006-0.012	X 0.006	X 0.005
Tetrachloroethene		0.002-0.012	0.002-0.38	X 0.005
Toluene		0.002-0.012	0.001-0.68	0.001-0.005
Trichloroethane, 1,1,1-		0.0035-0.009	0.003-0.010	X 0.005
Trichloroethane, 1,1,2-	X	0.008-0.009	X 0.006	X 0.005
Trichloroethene	X	0.008-0.009	0.001-0.240	X 0.005
Vinyl chloride	X	0.015-0.017	X 0.012-0.013	X 0.01
Xylenes	X	0.006-0.012	0.003-0.73	0.002-0.16

X : Values reflect "UJ" qualified data only

TABLE A-2 (cont)
RANGE OF CONCENTRATIONS FOR CONSTITUENTS OF POTENTIAL CONCERN
MCALLISTER POINT LANDFILL

		RANGE OF SURFACE SOIL CONCENTRATIONS (mg/kg)	RANGE OF SUBSURFACE SOIL CONCENTRATIONS (mg/kg)	RANGE OF GROUND WATER CONCENTRATIONS (mg/l)
SEMIVOLATILES				
Acenaphthene		0.11-3.8	0.057-5.8	0.003-0.045
Acenaphthylene		0.44-0.052	0.068-2.7	X 0.01
Anthracene		0.044-6.8	0.057-2.7	0.003-0.01
Benzo(a)anthracene		0.052-19	0.044-3.7	X 0.01
Benzo(a)pyrene		0.44-16	0.073-3.2	X 0.01
Benzo(b)fluoranthene		0.12-15	0.05-2.7	X 0.01
Benzo(ghi)perylene		0.2-8.4	0.067-2.7	X 0.01
Benzo(k)fluoranthene		0.12-14.0	0.052-2.9	X 0.01
Bis(2ethylhexyl)phthalate		0.44-7.9	0.11-12	X 0.01
Butylbenzylphthalate		0.44-7.9	0.31-2.7	X 0.01
Chrysene		0.072-18	0.05-3.6	X 0.01
Dibenzofuran		0.05-2.8	0.043-4.0	0.01-0.019
Dibenzo(a,h)anthracene		0.074-7.9	0.3-2.7	X 0.01
Dichlorobenzene, 1,4-	X	0.44	0.05-2.2	0.01
Dichlorobenzidine, 3,3'-	X	0.87-16.0	X 0.78-5.4	X 0.02
Dichlorophenol, 2,4-	X	0.44	0.054-2.7	ND
Diethylphthalate		0.27	0.045-2.7	0.001-0.01
Dimethylphthalate	X	0.44	X 0.39-2.7	X 0.01
Di-n-butylphthalate		0.44	0.046-6.7	X 0.01
Di-n-octylphthalate	X	0.37-7.9	X 0.096-2.7	X 0.01
Fluoranthene		0.17-46	0.047-5.9	0.002-0.01
Fluorene		0.09-4.7	0.044-4.4	0.003-0.025
Indeno(123cd)pyrene		0.16-8.9	0.21-2.7	X 0.01
Methylnaphthalene, 2-		0.099-1.1	0.05-4.5	0.001-0.043
Naphthalene		0.044-3.0	0.047-3.0	0.003-0.24
Phenanthrene		0.060-26	0.06-6.2	0.003-0.021
Phenol	X	0.44	0.15-2.7	ND
Pyrene		0.098-27	0.045-4.4	0.001-0.01
Trichlorophenol, 2,4,5-	X	2.2	0.11-14.0	ND
PESTICIDES				
Aldrin	X	0.0095	X 0.0085-0.1	ND
Alpha-BHC	X	0.0095	X 0.0085-0.1	ND
Alpha-chlordane	X	0.095	X 0.084-1.0	ND
Beta-BHC	X	0.0095	X 0.0085-0.1	ND
DDD, 4,4'-		0.019-0.19	0.0033-0.2	ND
DDE, 4,4'-		0.011-0.024	0.0023-0.2	ND
DDT, 4,4'-		0.007-1.8	0.0044-0.3	ND
Deildrin	X	0.019	X 0.017-0.2	ND
Delta-BHC	X	0.0095	X 0.0085-0.1	ND
Endosulfan I	X	0.0095	X 0.0085-0.1	ND
Endosulfan II	X	0.019	X 0.017-0.2	ND
Endosulfan Sulfate	X	0.019	X 0.017-0.2	ND
Endrin	X	0.019	X 0.017-0.2	ND
Endrin ketone	X	0.019	X 0.017-0.2	ND
Gamma-BHC	X	0.0095	X 0.0085-0.1	ND
Gamma-chlordane	X	0.095	X 0.084-1.0	ND
Heptachlor	X	0.0095	X 0.0085-0.1	ND
Heptachlor epoxide	X	0.0095	X 0.0085-0.1	ND
Methoxychlor	X	0.095	X 0.084-1.0	ND
Toxaphene	X	0.19	X 0.087-2.0	ND
PCBs				
Aroclor-1016	X	0.095	X 0.084-1.0	ND
Aroclor-1221	X	0.095	X 0.084-1.0	ND
Aroclor-1232	X	0.095	X 0.084-1.0	ND
Aroclor-1242		0.095	0.044-1.0	ND
Aroclor-1248	X	0.095	0.084-1.0	ND
Aroclor-1254		0.13-0.61	0.025-2.0	ND
Aroclor-1260	X	0.19	X 0.17-2.0	ND

X : Values reflect "UJ" qualified data only

ND : Not detected; "U" qualified data only

TABLE A-3
SUMMARY OF RISK ESTIMATES
SCENARIO 1 - TRESPASSING (CURRENT) - YOUTH AGED 9 TO 18 YEARS
MCALLISTER POINT LANDFILL

	Average		RME	
	Total HI	Total Cancer Risk	Total HI	Total Cancer Risk
SOIL (a)	0.0043	1.2×10^{-6}	0.064	1.8×10^{-5}
Incidental Ingestion of Soil	0.0042	1.1×10^{-6}	0.064	1.8×10^{-5}
Dermal Contact with Soil	0.00017	3.2×10^{-8}	0.00039	7.3×10^{-8}

(a) Surface soil

TABLE A-4
SUMMARY OF RISK ESTIMATES
SCENARIO 2 - RECREATIONAL (FUTURE) - YOUTH AGED 6 TO 18 YEARS
MCALLISTER POINT LANDFILL

	Average		RME	
	Total HI	Total Cancer Risk	Total HI	Total Cancer Risk
SOIL (a)	0.025	8.7×10^{-6}	0.36	1.3×10^{-4}
Incidental Ingestion of Soil	0.024	8.4×10^{-6}	0.36	1.3×10^{-4} (b)
Dermal Contact with Soil	0.00098	2.4×10^{-7}	0.0022	5.5×10^{-7}

(a) Surface soil

= Cancer Risk > 1×10^{-4}

(b) Benzo(a)anthracene: 2.5×10^{-5}
 Benzo(a)pyrene: 2.1×10^{-5}
 Benzo(b)fluoranthene: 2.0×10^{-5}
 Benzo(k)fluoranthene: 1.8×10^{-5}
 Chrysene: 2.3×10^{-5}
 Dibenz(a,h)anthracene: 1.0×10^{-5}
 Indeno(1,2,3-cd)pyrene: 1.2×10^{-5}

1 p rhaps I will switch my hat and raise the issue
2 as to the four sites that have been identified and
3 made a part of the agreement between DEM, the
4 federal government and the State of Rhode Island.
5 I note with dismay that hazardous waste apparently
6 has been discovered in large quantity in
7 Coddington Cove, which is adjacent to McAllister
8 Point. I know this hearing is specifically
9 focused on the remedial action for McAllister
10 Point, but it would seem to me that with the
11 existence of hazardous waste in Coddington Cove,
12 it would be an intelligent approach to things to
13 try to include that location in some kind of a
14 remedial program, whether as part of this effort
15 or not. I don't know just how far behind
16 Coddington Cove is. If the site seletion started
17 to take place in '83 and here we are in '93, I
18 would hope that we will be able to identify and
19 rectify Coddington Cove imediately and not hav to
20 wait another ten years for the identification
21 process before we go through such a hearing
22 process.

23 CAPTAIN RIGBY: Last chance. Thank
24 you all for coming this evening. We appreciat

1 your participation, comments and questions. Your
2 comments are important in the selection of final
3 remedial action for the site. Comments received
4 tonight, along with any written comments received
5 in the public comment period will be reviewed and
6 responded to in a document called a
7 Responsiveness Summary. The Responsiveness
8 Summary will be included in the record which will
9 be available in late September in depositories
10 located in Middletown, Portsmouth and Newport
11 public libraries. You can call the Department of
12 Public Affairs at the Newport Naval Education and
13 Training Center at 841-3538 for any additional
14 information. Again, copies of the plan
15 and copies of the slides which have been provided
16 in advance to us before this meeting are available
17 in the rear of the room. Thank you very much.

18 (HEARING CLOSED 8:30 P.M.)

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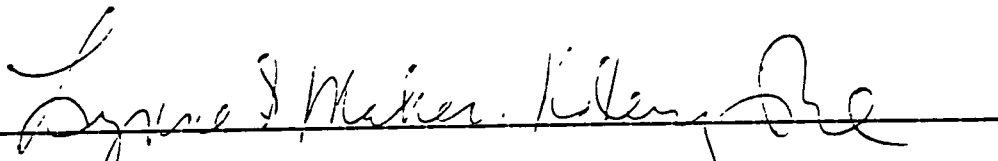
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C E R T I F I C A T E

I, Lynne S. Maher, hereby certify that the foregoing is a true and correct copy of my notes taken at the time of the above-entitled hearing.


LYNNE S. MAHER, NOTARY PUBLIC/CERTIFIED SHORTHAND
REPORTER

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APPENDIX C
ARARs ASSESSMENT
Site 01 - McAllister Point Landfill
NETC - Newport, Rhode Island

TABLE C-1
FEDERAL LOCATION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

MEDIA	REQUIREMENT	STATUS	SYNOPSIS	APPLICABILITY TO SITE CONDITIONS
Wetlands/Water Resources--	Executive Order 11988 and 11990; Statement on Proceedings of Floodplain Management and Wetlands Protection (40 CFR 6, Appendix A)	Applicable	Requires action to avoid whenever possible the long- and short-term impacts associated with the destruction of wetlands and the occupancy and modifications of floodplains and wetlands whenever there is a practicable alternative which promotes the preservation and restoration of the natural and beneficial values of wetlands and floodplains.	Will be applicable if implementation of the cap or associated shoreline protection impacts coastal or on-shore wetlands.
	Clean Water Act Section 404 (40 CFR 230.10) Requirements for Discharge of Dredge or Fill Material and Rivers and Harbors Act (Section 10) Prohibition of Filling a Navigable Water	Applicable	Prohibits the discharge of dredged or fill material to a water of the United States if there is a practicable alternative which poses less of an adverse impact on the aquatic ecosystem or if it causes significant degradation of the water. Rivers and Harbors Act prevents filling of a navigable water.	Applicable to the construction of a cap and associated shoreline protection along Narragansett Bay. If during the design process it is determined that cap construction cannot be limited to areas within the toeprint of the existing landfill, mitigation of any impacted wetlands will be required and a mitigation plan will be developed and distributed for public comment prior to implementation.
	Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661) Protection of Wildlife Habitats	Applicable	Requires consultation with federal and state conservation agencies during planning and decision-making process which may impact water bodies, including wetlands. Measures to prevent, mitigate or compensate for losses of fish and wildlife will be given due consideration whenever a modification of a water body is proposed.	If the implementation of a remedial action results in an impact to a water body, consultation with U.S. Fish and Wildlife Service, RIDEM, and other federal and state agencies involved in fish and wildlife matters is required. ARAR for construction of a cap and associated shoreline protection along Narragansett Bay.

terrestrial habitats?

TABLE C-1 (C ntinued)
 FEDERAL LOCATION-SPECIFIC ARARs AND TBCs
 RECORD OF DECISION
 McALLISTER POINT LANDFILL
 NETC - NEWPORT
 RCRA SUBTITLE C MULTI-LAYER CAP
 WITH SURFACE AND INSTITUTIONAL CONTROLS

MEDIA	REQUIREMENT	STATUS	SYNOPSIS	APPLICABILITY TO SITE CONDITIONS
Endangered Species--	Endangered Species Act of 1973 (16 U.S.C. 1531) Protection of Endangered Species	Applicable	Restricts activities in areas inhabited by registered endangered species.	Information supplied by the RIDEM Natural Heritage Program, Division of Planning and Development, in a letter dated August 3, 1993 indicates that RIDEM was not aware of any rare plants or animals or ecologically significant natural communities in the vicinity of the McAllister Point Landfill. The U.S. Fish and Wildlife Service will also be contacted during the Phase II RI to further define the potential presence of endangered specires.
Cultural Resources--	National Historic Preservation Act of 1966 (16 USC 470, et seq.) Protection of Historic Lands and Structures; Archaeological and Historic Preservation Act of 1974 (132 CFR 229 & 229.4, 43 CFR 7 & 7.4); Historic Sites, Building and Antiquities Act.	Applicable	Several statutes which govern the preservation at historic, scientific and archeological sites and resources. Includes action to recover and preserve artifacts, preserve historic properties and minimize harm to National Historic Landmarks.	Remedial actions must be coordinated with preservation agencies and societies to minimize loss of significant scientific, prehistoric, historic or archaeological data. ARAR for cap construction.

TABLE C-2
STATE LOCATION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

MEDIA	REQUIREMENT	STATUS	SYNOPSIS	APPLICABILITY TO SITE CONDITIONS
Wetlands--	Rhode Island Wetlands Laws (RIGL 2-1-18 et seq.); Rhode Island Department of Environmental Management Rules Governing the Enforcement of the Fresh-water Wetlands Act - as amended, Dec. 21, 1986.	Applicable	Defines and establishes provisions for the protection of swamps, marshes and other freshwater wetlands in the state. Actions required to prevent the undesirable drainage, excavation, filling, alteration, encroachment of any other form of disturbance or destruction to a wetland.	Regulation will be applicable if cap construction impacts a wetland area.
Coastal Zone--	Rhode Island Coastal Resources Management Law, (RIGL, Title 46, Chapter 23) and Regulations	Applicable	Creates Coastal Resources Management Council and sets standards and authorizes promulgation of regulations for management and protection of coastal resources.	Since McAllister Point Landfill is located in a coastal area, the lead agency will coordinate with the Rhode Island Coastal Resources Management Council and will ensure that all actions are consistent, to the maximum extent practicable, with the Coastal Zone Management Plan. ARAR for capping.

TABLE C-3
FEDERAL ACTION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARAR
<u>Capping</u>	RCRA (40 CFR 264) Subtitle C Requirements:	Relevant and Appropriate	Outlines specifications and standards for design, operation, closure and monitoring of performance for hazardous waste storage, treatment and disposal facilities.	Substantive RCRA requirements will be met and adhered to on-site.
	· 40 CFR 264.10-264.18 Subpart B - General Facility Standards	Relevant and Appropriate	General requirements regarding waste analysis, security, training, inspections, and location applicable to a facility which stores, treats or disposes of hazardous wastes (a TSDF facility).	This regulation may be applicable to remedial actions which address a waste which is a listed or characteristic waste under RCRA and which constitute current treatment, storage, or disposal as certified by RCRA.
	· 40 CFR 264.30-264.37 Subpart C - Preparedness and Prevention	Relevant and Appropriate	Requirements applicable to the design and operation, equipment, and communications associated with a TSDF facility, and to arrangements with local response departments.	This regulation may be applicable to remedial actions which address a waste which is a listed or characteristic waste under RCRA and which constitute current treatment, storage, or disposal as certified by RCRA.
	· 40 CFR 264.50-264.56 Subpart D - Contingency Plan and Emergency Procedures	Relevant and Appropriate	Emergency planning procedures applicable to a TSDF facility.	This regulation may be applicable to remedial actions which address a waste which is a listed or characteristic waste under RCRA and which constitute current treatment, storage, or disposal as certified by RCRA.
	· 40 CFR 264.90-264.101 Subpart F - Ground Water Protection	Relevant and Appropriate	Ground water monitoring/corrective action requirements; dictates adherence to MCLs and establishes points of compliance.	Studies to be conducted as part of this operable unit will include a ground water monitoring program. Monitoring standards will be met.
	· 40 CFR 264.110-118 Subpart G - Closure/Post Closure Requirements	Relevant and Appropriate	Establishes requirements for the closure and long-term management of a hazardous disposal facility.	Substantive standards and requirements will be met.

APPENDIX B
RESPONSIVENESS SUMMARY
Site 01 - McAllister Point Landfill
NETC - Newport, Rhode Island

APPENDIX B

RESPONSIVENESS SUMMARY FOR THE RECORD OF DECISION

Site 01 - McAllister Point Landfill Site
Naval Education and Training Center
Newport, Rhode Island

The purpose of this Responsiveness Summary is to review public response to the Proposed Plan (i.e., capping of the landfill area with a RCRA Subtitle C multi-layer cap, landfill gas management, surface controls, fencing and institutional controls, additional site investigations, and operation and maintenance and site monitoring) for the McAllister Point Landfill Site. The Responsiveness Summary also reviews public comment on other remedial alternatives considered but not recommended. In addition, it documents the Navy's consideration of such comments during the decision-making process and provides answers to any major comments raised during the public comment period.

The responsiveness summary for the remedial action is divided into the following sections:

- Overview - This section briefly describes the remedial alternative recommended within the Proposed Plan, and any impacts on the Proposed Plan due to public comment.
- Background on Community Involvement - This section provides a summary of community interest in the proposed remedy and identifies key public issues. It also describes community relations activities conducted with respect to the area of concern.
- Summary of Major Questions and Comments - This section summarizes verbal and written comments received during the public meeting and public comment period, respectively.
- Remedial Design/Remedial Action Concerns - This section describes public concerns which are directly related to design and implementation of the selected remedial alternative.

OVERVIEW

At the time of the public comment period, the Navy had selected a preferred source control remedial alternative for the McAllister Point Landfill Site at the Naval Education and Training Center in Newport, Rhode Island. The Navy's recommended alternative addressed the problem of source control with respect to the presence of a landfill at the site. The preferred alternative involved the capping of the landfill area with a RCRA Subtitle C multi-layer cap, landfill gas management, surface controls, fencing and institutional controls, additional site investigations, and operation and maintenance and site monitoring. This preferred alternative was selected in coordination with the USEPA and RIDEM.

Comments received during the public comment period indicate that the public generally supports the selected remedy. Both verbal and written comments were received on the Proposed Plan.

The sections below describe the background of community involvement with the project and the U.S. Navy's responses to verbal and written comments received during the public comment period.

BACKGROUND ON COMMUNITY INVOLVEMENT

Throughout the remedial investigation activities, the Navy, RIDEM, and USEPA have been directly involved through proposal and project review and comments. Periodic meetings have been held to maintain open lines of communication and to keep all parties abreast of current activities.

Local input to the selection of the preferred remedy has come predominantly through the TRC, established by the U.S. Navy. Meetings held approximately every two to three months since 1988 have brought together local representatives of Middletown, Newport, and Portsmouth. The TRC also has included representatives from USEPA, RIDEM, U.S. Fish & Wildlife, NOAA and the Narragansett Bay project. This involvement has facilitated remedial planning by the U.S. Navy and has alerted affected local groups to the proposed activities.

On August 4, 1993, the Navy finalized the Proposed Plan. On August 3 and August 4, 1993, notices appeared in the Newport Daily News and on August 4, 1993 a notice appeared in the Providence Journal Bulletin. The notices summarized the site investigation process and the preferred remedial alternative. The announcements also identified the time and location of a public meeting to be held to discuss the proposed action, the location of the administrative record and information repositories, the length of the public comment period, and the address to which written comments could be sent. A notice of a change in location of the public meeting and public hearing was printed in the Providence Journal Bulletin on August 25, 1993 and in the Newport Daily News on August 23 and August 24, 1993.

A public meeting was held on August 25, 1993, at 7:00 p.m. at the Gaudet Middle School Cafeterium on Aquidneck Avenue in Middletown, Rhode Island. The site investigations conducted at the site and the proposed remedial alternative were discussed. Representatives at the meeting included: Captain William H. Rigby, Jr., Director for Public Works Naval Education and Training Center; Francisco La Greca, U.S. Navy Remedial Program Manager; Robert C. Smith, James Peronto and Jean M. Oliva, all representing TRC Environmental Corporation; Andrew Miniuks, Remedial Project Manager, USEPA; Greg Fine, Senior Engineer, RIDEM; and Paul Kulpa, Project Manager, RIDEM. The informational meeting was immediately followed by a formal public hearing, at which formal public comments for the record were solicited.

SUMMARY OF MAJOR QUESTIONS AND COMMENTS

Five sets of written comments were received during the 30-day public comment period from August 4, 1993 to September 3, 1993. RIDEM, local citizens, a State Representative, a representative of the Middletown Conservation Commission and an attorney representing an adjacent golf course presented verbal comments at the formal public hearing. A copy of the public hearing transcript is included as Attachment A to this Responsiveness Summary. Presented below is a summary of the comments received during the public comment period and the Navy's responses to the comments.

CITIZEN COMMENTS

Citizens, a State Representative, a Middletown Conservation Commission representative and an attorney representing the Wanumetonomy Golf and Country Club, Inc., presented verbal comments at the formal public hearing on August 25, 1993, as summarized below. Two sets of written comments were received from interested citizens. These are also summarized below.

Verbal Comments

Comment 1: I would like to see in hot spots, some type of in situ remediation such as R.F. to eliminate any potential hazards from precipitating into the ground water.

Response: *Radio frequency heating (R.F.) is a relatively innovative treatment process which has not had extensive applications to site remediation to-date. It is a low-temperature thermal desorption technology originally developed for thermal recovery of hydrocarbons from oil shale and other oil deposits. The technology involves in situ heating of vadose zone soil using electrodes and radio waves, thereby vaporizing and mobilizing organic contaminants. Vapors emitted from the soil are collected in a vapor barrier above the soil surface for subsequent treatment. The potential application of this technology to hot spots within the landfill (as opposed to contaminated soil) could pose technical difficulties due to the presence of the waste materials. Its potential application would also depend on the type of contamination in the hot spot area and its ability to be treated by this technology (e.g., inorganic contaminants would not be treated). Radio frequency heating and other in situ treatment technologies will be evaluated in more detail, as appropriate, for potential hot spot remediation based on the results of additional site studies.*

Comment 2: Yesterday, I saw a boat about a hundred yards off shore from the site, on the southern side of the landfill. I hope that that was TRC doing research. Which brings me to my point of mussels and clams. I would like to see it expanded to the benthos type of dwellers. The lobsters are abundant in that rocky area, and of course we encourage lobsters to live in that area. If you could expand your sampling into that type of benthos creature, eels another example.

Response: *There are several reasons for which mussels and clams were selected for the off-shore study, which was specifically conducted to determine if the site is impacting near-shore sediments and biota. Mussels are used as representative organisms based on their inclusion in a nationwide sampling program ("mussel-watch") administered by the National Oceanic and Atmospheric Administration (NOAA). This national status and trends program provides a comprehensive data base on mussel tissue quality. Clams were included in the sampling program in the event that mussels were not present at a given sampling location. Both mussels and clams are stationary organisms that do not move significant distances; therefore, any detected impacts are more easily attributed to the location at which the sample was collected than would be true for other more mobile organisms. Both organisms live in and not on the sediments; therefore, they are directly exposed to any contaminants coming up through the sediments. Lastly, both organisms are filter-feeding organisms which pump large quantities of water through their bodies. Therefore, if water quality is impacting the organisms, they are more likely to reflect these impacts than other organisms would be.*

Comment 3: In another month, the railroad is running a coastal cleanup the 18th of September, and like the past two years, people will be let off trains to pick up debris along the coastal area, and that area will probably be one of the areas that people will drift into. I can approach the Navy base from any direction and see a sign that says "Government Property, No Trespassing". That could be from Gate 1, maybe up to Gate 17. As I go down the Burma Road, I look and I see a sign that says "Government Property, No Trespassing". I don't think that's enough, especially since we've identified the potential of a hazardous waste site, a candidate for Superfund money.

Your alternative 2, I think it was, identified as signage and fence perimeter. The slides I saw this evening showed no signs from the water. People in boats not familiar with the area could land there and pick up shells and things like that because they are funny looking.

Response: Signs have been ordered which will be placed around the perimeter of the site.

Comment 4: Ground water is another concern. I know that cap is going to infiltrate the surface water, ground water, I think has been well-defined this evening, and it also is a concern of mine. Ground water is not being used in a residential area, but an almost abutting neighbor is the golf course, and if they start to use aquifers to water their grass, you could create a zone of convergence and the ground water will shift from the flow east to west, and maybe north to south. I would like you to take that into consideration.

Response: Prior to conducting any ground water modeling or additional hydrogeologic evaluations, the Navy or its consultant will contact the golf course to determine extraction well locations, pumping rates and subsurface conditions, as available. Potential impacts on ground water flow direction and/or contaminant migration will be evaluated.

Comment 5: I would like to reiterate something that I said earlier in a formal setting and that is that I would hope that wherever possible the University of Rhode Island would be involved in all possible aspects and use be made of the expertise of the faculty and the facilities in the appropriate departments. I think we have a vast resource there and I think not only should you tell them about it, but you ought to try and involve them in every way you can in solving this problem.

Response: The Navy will evaluate potential means by which URI coastal zone expertise can be utilized as a resource in the development and implementation of remedial actions at NETC.

Comment 6: To underscore what was just mentioned, presently the club (the Wanumetonomy Golf and Country Club, Inc.) is actively engaging in the location of well water on site, to date a half dozen to a dozen wells. They will be looking towards using that water for fairway use and to water the course, which is with the exception of two to three fairways not subject to watering of the fairways, only greens and tees are watered. I don't know much about the hydrology of things, but I do feel that you ought to know that that program has finally been put into place and presumably accelerated by this summer's drought will be continued until the course will be self-sufficient in using water from the underground aquifers that are available to water the fairways as well.

Response: See response to verbal comment 3 above.

Comment 7: I missed the informal portion of the program and I didn't ask the question, but I presume that the alternative that is being suggested, Number 4, has a price tag of something in the order of \$8,000,000. I assume that that money will be from CERCLA and not any state monies. I pose that as a question. I would like to know whether or not the state is involved with any liability or responsibility.

Response: Remedial activities will be funded by the Navy through the Defense Environmental Restoration Account (DERA), an account containing funds appropriated by Congress to be used to fund the investigation and cleanup of past hazardous chemical releases at Department of Defense (DOD) sites. No state funding will be used.

Comment 8: I note that there was an effort to identify sites which has been going on since 1983 at the particular location of the Naval installation, and in my capacity as Chairman of the Middletown Economic Advisory Committee, perhaps I will switch my hat and raise the issue as to the four sites that have been identified and made a part of the agreement between DEM, the federal government and the State of Rhode Island. I note with dismay that hazardous waste apparently has been discovered in large quantity in Coddington Cove, which is adjacent to McAllister Point. I know this hearing is specifically focused on the remedial action for McAllister Point, but it would seem to me that with the existence of hazardous waste in Coddington Cove, it would be an intelligent approach to things to try to include that location in some kind of a remedial program, whether as part of this effort or not. I don't know just how far behind Coddington Cove is. If the site selection started to take place in '83 and here we are in '93, I would hope that we will be able to identify and rectify Coddington Cove immediately and not have to wait another ten years for the identification process before we go through such a hearing process.

Response: *The Navy believes that this comment is directed towards Derecktor Shipyard which has recently been described in the local newspapers. The Navy completed a preliminary site assessment report in May 1993 for Derecktor Shipyard, a 41-acre site. The report recommends to the Navy that sampling of soils, sediments, and ground water be taken in specific smaller areas within this large 41-acre site to determine or deny the presence of contamination. The Navy expects to be collecting samples later this year. Other areas in the Derecktor Shipyard were determined to be clean and no sampling was recommended.*

Written Comments

Comment 1: At the hearing and in the documentation, it is stated that a geomembrane will be placed over the landfill. At the public hearing, the environmental engineer representing the State of Rhode Island (seated in the audience) stated that this membrane is plastic and will be covered by clay. He also stated that the plastic inevitably rips. Why use a plastic if it will rip easily? I'm sure there must be a product in existence that is thick enough and strong enough to survive the installation and covering process.

Response: *The Navy does not agree with the description of the geomembrane as presented by the State of Rhode Island representative. The landfill cap as described in the Proposed Plan consists of a geomembrane material which overlies an impermeable soil layer. The clay layer will not be placed over the geomembrane. The statement that the plastic inevitably rips is also misleading. Significant research has gone into the development of geomembrane materials for landfill use, since they are not only used for capping but are also typically used in combination with clay liners as barriers to leachate migration at the bottom of newly constructed landfills. Therefore, the geomembrane materials have been designed and tested to minimize degradation under actual landfill conditions, including ultraviolet and chemical degradation as well as physical forces such as tensile and shear stresses. The design of the landfill cap will include development of construction quality control and quality assurance steps to minimize any impacts to geomembrane quality which could result from the manufacture or installation of the geomembrane. Since the geomembrane is supplied in rolls, seaming technologies have been developed to join the panels of geomembrane as they are rolled out across the site. Seaming methods produce a continuous bond that has a seam strength greater than or equal to the geomembrane material itself. If a rip should occur, the area could be patched and seamed. By combining the geomembrane with a low permeability soil layer, a dual barrier to infiltration of precipitation is provided.*

Comment 2: The plan states that gas wells will be put in place to vent gases from hot spots. What types of gases will be emitted from this landfill and are they hazardous or not? What amount of gas is expected to be emitted? What is the anticipated discharge rate of gases (i.e. volume per hour or day or month)? Has any thought been given to capture these gases and recycle them? If the gases are not recycled, will they be treated before release into the atmosphere? Has a study been done on the direction of winds in the area and how these gases will disperse? Will these areas reach the golf course or housing beyond the golf course and affect the people in these areas?

Response: *Currently, landfill gases have not been sufficiently characterized to determine rates of generation or chemical composition, although the typical composition of landfill gas is about 50% methane, 40% carbon dioxide, and 10% other gases including nitrogen products (Design and Construction of RCRA/CERCLA Final Covers, USEPA, 1991). During the design of the landfill cap, field studies will be conducted to characterize the nature of the landfill gas which will be extracted by the landfill gas management system. These studies will include conducting vapor extraction pilot tests on wells within the landfill area. Samples of the landfill gas will be submitted for laboratory analysis. Based on these studies, the landfill gas management system will be designed. Either a passive extraction system (e.g., lateral trenches and vents) or an active extraction system (e.g., extraction wells and exhaust blowers) will be utilized. A landfill gas report which will present the results of these studies will be developed as part of the design submittals. Since the gases are being removed from the landfill to prevent potential "bubbling" of the landfill cap, these gases will not be recycled back into the landfill but will be released into the atmosphere. If treatment is required to meet state and federal air quality regulations, the gases will be treated prior to release. No off-site impacts are expected as a result of the release of these gases.*

Comment 3: Based on the figure presented at the hearing which showed that the landfill is in the water table area of the bay, I would like to know how the Navy proposes to prevent bay water from entering the landfill and contaminants from leaching into the bay. The plan shows a stone revetment which I assume will be used to prevent damage to the landfill by tide changes and storms. However, what will the seal be and how will it be put in place?

Response: *Again, the Navy would like to emphasize that the referenced figure was developed by the Rhode Island Department of Environmental Management and, as noted by Paul Kulpa in his presentation of the figure, it was not drawn to scale and did not accurately represent the actual location of the water table within the landfill area. The presence of the water table within the landfill area, tidal influences, and the impact of the cap on ground water hydrogeology will be evaluated during cap design activities by conducting a leachate generation, fate and transport study which will include ground water modeling. The results of this study will be presented within a leachate generation, fate and transport report, which will be included as a design deliverable. Also included in the design studies is an ecological assessment of the potential impacts on leachate migration from the landfill into the bay. Currently an off-shore sampling and analysis effort is underway to characterize potential impacts to benthic organisms and sediments. The actual design of the seaward side of the cap will depend on the results of these studies as well as on the results of slope stability and slope protection analyses. All the data generated from the Phase II studies will be used to design the seaward side of the cap. This information will be incorporated into the design of the overall cap. The submission of the draft design documents is expected by the summer of 1994.*

Comment 4: The work of additional studies, closure, gas-management design and construction, shoreline protection and access control, etc., should be integrated into ongoing research and development

by: 1) entities of the University of Rhode Island (URI), 2) interested environmental technology, service and education businesses in Rhode Island and 3) the Rhode Island Department of Environmental Management and possibly other state or Federal agencies or departments - as a valuable government-business-academia partnership consistent with current Congressional policy related to Defense bases and defense conversion.

Rationale: At the public hearing, RI Department of Environmental Management officials stated that the McAllister Point Landfill is the first landfill adjacent to coastal-zone waters in Rhode Island to be analyzed and remediated. These officials identified for the first time publicly at least nine areas of concern for further analysis to help make final approval decisions on closure, gas-management, shoreline protection, long-term monitoring, state vs. Federal regulations, and other issues of the site. A citizen identified as a RI General Assembly member questioned whether URI coastal-zone expertise had been consulted by RI-DEM to help in their review. The RI DEM response revealed that little URI expertise in oceanography, ocean engineering, civil & environmental engineering, coastal zone resource management, atmospheric chemistry, general chemistry and other environmental disciplines had been fully integrated into analysis by RI-DEM officials. Another citizen questioned if emerging technologies such as IR and RF energy for solid and gas mitigation might be applied. If the learning experience associated with this landfill can be integrated, the following benefits may accrue:

- The academic community can give and receive important environmental and engineering information in the process. This will strengthen the value-adding nature of higher education in Rhode Island.
- Environmental technology and service businesses may be able to learn from this experience to design optimum equipment, techniques and procedures for improved application not only in the U.S. but for sale to foreign countries with far more severe coastal zone environmental problems. This can strengthen businesses, promote export sales and create jobs for our citizens.
- The government agencies can collaborate in a customer-oriented and serving manner to reach the best possible results with the McAllister Point Landfill. Collaboration between business, government and academia can shed additional light on technical, cost and public factors to reduce the risk of wrong decision and help make even better future decisions. Full and open collaboration which helps the Navy, business and academia will illustrate shining examples: of spin-off, spin-on and dual-use government/commercial technologies specified in Division D of the FY93 Defense Authorization Act; in "reinventing government" advocated by the Clinton Administration (Vice President Gore Initiative) and; directed by the Governor of Rhode Island in Executive Order 93-16.

Response: *The Navy, USEPA and RIDEM have been working together in the development of this Proposed Plan to ensure that the remedial action utilizes state-of-the-art practices which are applicable to the remediation of an 11.5 acre landfill site. The involved agencies have and can continue to evaluate other resources around the country that might add value to the preferred alternative, within the time constraints of this particular action. While the Navy agrees that benefits can result from an integrated approach to site remediation in which the academic community, environmental technology and service businesses, and government agencies collaborate, the scope of the proposed remedial action, environmental protection concerns and time constraints limit the applicability of such a*

comprehensive collaboration to the proposed action. Considering that the site is a landfill for which many remedial alternatives are impracticable due to implementability or cost, the proposed capping action has been developed to stabilize site conditions and provide source control while additional site investigation activities are on-going. As noted in the Proposed Plan, this approach is consistent with the expectations of the Superfund program, as listed in the National Oil and Hazardous Substances Contingency Plan [NCP, 40 CFR 300.430(a)(1)]. The NCP indicates that the principal threats posed by a site should be treated wherever practicable and that engineering controls, such as containment, are appropriate for wastes which pose a relatively low long-term threat or where treatment is impracticable. Capping as a means to provide source control at a landfill site is a well-proven, accepted action which has been studied to a significant extent and for which remedial design guidance is readily available. A delay in the design and implementation of the cap will defeat the purpose of fast-tracking a source control remedial action and will allow for continued leachate generation and associated environmental impacts. To take advantage of available federal funding for the implementation of this action, delays must be minimized.

Comment 5: The required time-lines (e.g. 15 months from alternative approval to multi-layer cap completion) should be waived as required (lengthened) if the learning, environmental business development and multi-agency collaboration will gain value from longer times in R&D.

Response: The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) stipulates that implementation of a remedial action at a federal facility be within 15 months of the completion of site investigations and study [42 USC 9620 Sec. 120(e)(2)]. The 15-month period begins once the Record of Decision (ROD) is signed and ends when initiation of the remedy is begun.

Comment 6: If regulations, Federal or state decision-maker or public opinion do not allow a logical, phased use of the McAllister Point Landfill as a focused study and environmental technology, service and procedure development site; then the RCRA Subtitle C Multi-layer cap, gas management system, surface and institutional controls and monitoring systems should be designed with maximum flexibility for future study and analysis. For example, selected locations in the cap (e.g. over "hot-spots" or other unique areas) could be closed with removable plug systems to enable subsequent sampling and analysis. Some sample access wells, sensors, piping, etc., could be installed to allow future access.

Response: The Phase II RI investigation allows for areas of the site to be investigated for hot spots. Implementation of landfill gas migration control systems and long-term ground water monitoring systems will require the placement of monitoring wells and/or manholes within the capped area which will allow for monitoring of subsurface conditions after the cap is constructed. The results of additional site investigations will be evaluated during the cap design process to determine if the implementation of additional subsurface monitoring systems are appropriate. However, since keeping water out of the landfill is the prime element of the capping strategy, penetrations of the composite barrier system will be minimized to the greatest extent possible.

Comment 7: If approval is obtained to use the McAllister Point Landfill remediation as a combined work-study, academic research, environmental technology/service business development and government agency teamwork project, then the Integrated Environmental Center Project, a not-for-profit strategic alliance, can facilitate writing appropriate unsolicited grant proposals to obtain Federal, corporate, foundation or foreign funding for the proposed additional activity such that no additional Navy, University of Rhode Island or State of Rhode Island funding is required.

Response: *While the proposed remedial action may not be suited for integration into the collaborative partnership suggested within these comments, this approach will be considered in the development of future remedial plans at NETC. The availability of the resources of the Integrated Environmental Center Project will be included in these considerations.*

COASTAL RESOURCES MANAGEMENT COUNCIL COMMENTS

Comment 1: Considering land use of upland ground water recharge areas in proximity to the landfill, and the noted (horizontal) hydraulic conductivities and gradients within the landfill (toward Narragansett Bay), it appears evident that up-gradient ground water sources must be controlled to effectively prevent continued migration of contaminated leachate to the Bay.

Response: *A leachate generation, fate and transport study will be conducted as part of the remedial design of the cap. This study will utilize modeling to evaluate leachate generation under both existing conditions and under a future capping situation, will evaluate ground water flow and convective transport modeling, leachate loading and plume migration to Narragansett Bay and natural ground water flow and transport (flushing) after capping. The leachate generation, fate and transport study report will be developed as part of the design submittals. The results of this study will be used to determine if additional remedial actions are required to reduce the amount of ground water in contact with subsurface waste materials, as has been noted in the list of additional study requirements included in the proposed remedial alternative. Management of contaminant migration will be addressed within a separate operable unit for the site.*

Comment 2: Though identified to be assessed during the Phase II Remedial Investigation (and the alternative "easily modified" to incorporate additional remedial actions), what assessment criteria (ARAR/TBCs) and time frames will be used to determine if additional ground water control is necessary? Further, the effect of tidal flux beneath the landfill on the transport of leachate to Narragansett Bay, and mitigation of same if identified, appears to require additional consideration. Improvements to the Narragansett Bay water quality through the minimization of contaminated leachate migration would be consistent "to the maximum extent" with the RI Coastal Resources Management Program (RICRMP), as per the 15 CFR 930 Subpart C (Consistency for Federal Activities) requirements. Similarly, time frame estimates for the "Additional Studies" (gas treatment, "hot spot" remediation, and shoreline sediment assessment) should be clarified to insure a reasonable integration into the Phase I actions, if necessary (e.g. removal and capping of contaminated shoreline sediments). Can final selection of specific Phase II Remediation alternatives be incorporated into the Record of Decision (or binding language specifying threshold criteria)?

Response: *As noted in the previous response, additional studies regarding leachate generation and transport will be conducted during the design phase of the landfill cap remedial action. These studies, the additional studies noted within the preferred alternative description as well as Phase II Remedial Investigations must be conducted before Phase II remedial alternatives can be developed and evaluated within a separate Feasibility Study. It is within the Feasibility Study that ARARs/TBCs and time frames will be evaluated for remedial alternatives that address management of contaminated ground water migration. The Navy is confident that significant reductions in leachate generation (and, therefore, associated reductions in contaminant transport to Narragansett Bay) will result from the capping of the landfill. As presented in the Preliminary Cover Infiltration Analysis (Appendix A to the Focused Feasibility Study), a Hydrologic Evaluation of Landfill Performance (HELP) model*

of the proposed cap indicated that less than one percent of the total annual precipitation would infiltrate through the multi-layer cap. Therefore, the Navy feels that by addressing source control separately from management of contaminant migration, an initial and timely reduction in leachate generation can be achieved while additional studies are conducted to support the evaluation of management of contaminant migration remedial options. These additional studies will be conducted within the next year, based on current schedules. Since the Feasibility Study for the management of migration operable unit has not yet been conducted, specific Phase II remedial alternatives cannot be identified for incorporation within this Record of Decision.

Comment 3: Regarding the proposed shoreline treatment, the shoreline at the subject site is designated by FEMA as a high hazard ("V") flood zone, subject to flooding and wave action. The corresponding 100-year base flood level (including wave) is +17 feet NGVD. Shoreline protection proposed for the site should equal +17' NGVD in height, or greater if required due to wave runup effects. Additional revetment detail is required including design parameters (wave heights, etc.), stone size, site preparation, and construction access requirements, etc. In addition, specify slope treatment above the revetment. (A more substantial vegetative /structural treatment may be appropriate). It is noted that Rhode Island Coastal Resources Management Program (RICRMP) Section 300.2.C.1(f) (Filling, Removing, and Grading) states "cutting into rather than filling out over a coastal bank is the preferred method of changing upland slopes," and Section 300.7.F.1 (Structural Shoreline Protection) requires that "the base of the...revetment must be located as close as practicable to the shoreline feature it is designed to protect." Also, RICRMP Section 300.10 requires that filling in tidal waters be minimized.

Response: The remedial alternative descriptions presented in the Proposed Plan and the Focused Feasibility Study are conceptual and subject to the final design process. Remedial design activities will include a site survey and the development of a survey plan which will serve as a base map during the design process. The stone armor protection will extend above the design storm water level plus the wave run-up from the design wave. The cap will not be directly exposed to wave action from the design coastal storm event. The comments presented above will be considered in the development of the final design of the shoreline slope protection details. As noted in Table C-2 of Appendix C of this document, the Rhode Island Coastal Resources Management Law and Regulations are considered to be applicable to capping activities at this site. In addition to these requirements, in order to meet the requirements of the Clean Water Act, Section 404, the Navy proposes that the cap be constructed within the toeprint of the existing landfill or that wetlands mitigation be provided if this is not possible.

Comment 4: Per RICRMP Section 320, approval from RIDEM will be necessary prior to CRMC concurrence with the Navy's Consistency Determination.

Response: The Navy will seek RIDEM approval prior to CRMC concurrence.

SAVE THE BAY COMMENTS

Comment 1: The Proposed Plan states that the remedial action is designed to address contaminated waste in the unsaturated zone (the proposed cap will limit the migration of contaminants from the waste above the water table). It does not address the migration of contaminants from waste currently in the ground water, or from the saturated zone at the site. Save the Bay would prefer to see a removal and treatment policy implemented (possibly at a TSCA landfill or incinerator), as

opposed to a containment policy. The 1986 SARA amendments to Superfund demand that remedies be chosen which will reduce the level and/or volume of toxicity in a site's contamination.

Response: *The management of contaminant migration will be addressed within a separate operable unit for the site. With respect to Save the Bay's preference for removal and treatment, CERCLA, as amended by SARA, states that a remedial action will be selected that "is protective of human health and the environment, that is cost effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable" [42 USC 9621, Section 121(b)(1)]. The removal of the entire landfill area with transport off-site to either a TSCA landfill or incinerator would be impracticable due to the large quantity of material requiring excavation and the limited available capacities of permitted landfills and incinerators. Such an alternative would not be cost-effective and would result in significant short-term risks to human health and the environment during the excavation and transport process. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which was revised in 1990 to implement regulatory changes necessitated by SARA, sets forth EPA's approach for implementing SARA. Under Section 300.430(a)(1)(iii), the expectations for development of remedial alternatives are outlined. In general, EPA expects to use treatment to address the principal threats posed by a site, wherever practicable, and engineering controls, such as containment, for waste that poses a relatively low long-term threat or where treatment is impracticable. EPA also expects that a combination of methods be used as appropriate, where treatment of the principal threats posed by a site is combined with engineering controls and institutional controls, as appropriate, for treatment residuals and untreated waste. The proposed remedial alternative provides containment of the entire landfill area, where treatment is impracticable, but allows for further evaluation of potential principal threats, such as those that could be posed by hot spot areas, contaminated sediments, or ground water contamination. These media will be addressed within a separate operable unit for the site.*

Comment 2: Although Save the Bay recognizes that ground water and storm water discharges will be monitored, we are nevertheless fearful that contaminated ground water is currently flowing into Narragansett Bay. As stated on pg. 8 of the Proposed Plan, "site ground water samples exhibited elevated levels of metals" and "inorganics were also present in mussel samples" located near the landfill shore. We support the Proposal's ground water monitoring, but would like to see more specificity in how this monitoring is to be carried out. We would also like to know more about the near-shore sediment and biota sampling that will take place in Phase II of the RI. The initial investigations of mussel and sediment samples merit further and more detailed study into the effects of the site on them. As mentioned on pg. 9 of the Proposed Plan, "the study [the Initial Site Investigation] did not define whether the landfill was continuing to contribute contaminants into Narragansett Bay, and if it was, the potential contaminant migration pathways by which the contamination was reaching the bay." We hope that Phase II of the RI will address our serious concerns has over the site's contamination of the Bay. We also hope that the Phase II investigations will be discussed in more detail and that a schedule is provided for the ongoing investigations and activities.

Response: *A Phase II Work Plan has been developed but it has not yet been finalized. As described in Section 1.5.4 of the Focused Feasibility Study, Phase II investigations will include a geophysical survey, soil gas survey, and surface and subsurface soil, ground water, and leachate sampling. An off-shore investigation involving sampling of sediments, clams and mussels is also being conducted. The Phase II investigation effort has been negotiated and investigation activities are anticipated to begin during the fourth quarter of 1993.*

While ground water monitoring will be included in the long-term monitoring of the site, the management of contaminant migration, including potential migration of contaminated ground water and impacts on the Bay, will be addressed separately. Cap design activities will include the development of a long-term monitoring plan for the site which will identify the wells to be monitored, include a sampling and analysis plan, and define reporting requirements.

Comment 3: Save the Bay has comments on the limits of the multi-layer cap. By its very design, the cap would limit any future remedial actions. Once the cap is in place, it will be very difficult to address the problem of additional "hot spots". Furthermore, if the Phase II RI investigations discover sediment or any other unforeseen contamination, will there be enough time to modify the cap design? We recognize that the U.S. Navy is under difficult time constraints, and hope that the Phase II RI will be flexible enough for the U.S. Navy to deal with unexpected developments.

Response: The Navy and its site investigation/design contractor are working together to schedule both investigation and design activities in a manner which minimizes unexpected conflicts. The second operable unit will be developed and the ROD issued prior to the commencement of construction of the cap (first operable unit).

Comment 4: The proximity of the McAllister Point Landfill to the shoreline also raises questions about the possibility of hurricanes and storm surges. As you are aware, hurricane season is upon us, and Rhode Island has not been visited by a Category 3 hurricane since 1960. We support the placement of a revetment along the shoreline slope, but would appreciate more data on its strength and effectability should a hurricane occur. It is possible that a strong hurricane could wash away much of the shoreline, and consequently, many of the contaminants into the Bay. In addition, Save the Bay requests that some sort of preliminary protective barrier be erected until the Phase II RI is completed, which is estimated to take at least 15 months.

Response: The proposed stone revetment slope protection for the landfill is an integral part of the cap construction and cannot be separated from the landfill cap design and construction process. The multi-layer cap must be designed and constructed prior to placement of the stone revetment, since the cap will extend to the toe of the slope directly beneath the stone revetment. The cap design and construction process will therefore not allow the cap and slope protection to be treated as independent entities. The existing presence of concrete debris and other rubble at the toe of the landfill provide some protection of the slope in the interim. Design criteria for the slope protection to be provided along the seaward slope of the landfill will be included in the design submittal.

Comment 5: There is discussion on whether or not to level the steep grade of the slope at the shoreline, either through removing areas of the landfill or by filling in areas near the shoreline. Considering that the entire site was created by landfilling Narragansett Bay, Save the Bay is strongly opposed to any more of this type of action. The biointegrity of the Bay has already suffered because of the site, and there is no need to cause additional damage to the shoreline.

Response: There are physical factors which limit the steepness of any slope and composite landfill cap. These factors will be evaluated during the design process to allow for a safe design. It is anticipated that a reduction in slope along the seaward side of the site will be required to ensure slope stability and to support the construction of the cap and slope protection features. In accordance with Clean Water Act Section 404 requirements, efforts will be made to limit the extent of cap construction to within the footprint of the existing landfill. The Navy wishes to clarify the fact that, while some filling

of Narragansett Bay did occur within the central portion of the site, the "entire site" was not created by landfilling Narragansett Bay. This statement is supported by historic aerial photographs of the site, which were available for review at the public meeting.

Comment 6: Save the Bay is also concerned about the potential presence of DNAPLs and LNAPLs in the groundwater at the site. Current technology on identifying and removing DNAPLs and LNAPLs is still in the experimental stage, and Save the Bay is concerned of the possibility that DNAPL and LNAPL contamination could be overlooked during the remediation process. As new information on these contaminants becomes available, we urge the Department of the Navy to apply this information to the Phase II Remedial Investigation. As stated previously, Save the Bay is concerned that once the cap is in place, the issue of DNAPL and LNAPL contamination will either become ignored or untreatable.

Response: Where LNAPLs or DNAPLs are identified during field investigations, the Navy will evaluate potential remediation of any such areas as hot spot areas separately. A NAPLs assessment, which is described further in the response to RIDEM Comment 2 (see page B-14), has been proposed by the Navy.

STATE COMMENTS

RIDEM provided oral and written comments at the public hearing through Warren Angell, Supervising Engineer, Division of Site Remediation. RIDEM later submitted a comment letter dated September 2, 1993 from Terrence Gray, Chief, Division of Site Remediation. RIDEM comments are summarized below.

Comment 1: The landfill is located adjacent to Narragansett Bay and is subject to tidal influences, flooding and wave actions. The State will recommend that these conditions be taken into account when the Navy conducts their leachate generation study. In addition, tidal influences and wave actions may have a bearing on any areas of highly contaminated material (i.e., hot spots) located at the site.

Response: The leachate generation, fate and transport study to be conducted as part of the remedial design will include an evaluation of available information on tidal influence and fluctuation and will include modeling to evaluate leachate generation, ground water flow and convective transport. A leachate generation, fate and transport report will present the study results and will be developed as part of the design submittals. Tidal influence data from the Phase II RI at the site will be incorporated into the leachate fate and transport study.

Comment 2: The state is concerned about the potential for hot spots to be present at the site. The Navy has proposed limiting the number of surface soil samples to be collected during the Phase II Remedial Investigation. The Navy should consider applying the resources which will be realized from the reduction of surface soil samples to an expansion of the number of subsurface soil samples. The purpose of this effort would be to further determine the potential existence of hot spots at the site.

The Navy has identified two potential "hot spots" at the site and has proposed conducting a soil gas survey and also locating certain monitoring wells and subsurface borings in order to investigate these spots. The State has identified two additional hot spots and has recommended

that the Navy increase the area to be covered by the soil gas survey to investigate these additional hot spots.

The State has also recommended that the Navy test for Non Aqueous Phase Liquids or NAPLs at the site. Trace amounts of NAPLs were detected during Phase I Investigations. The Navy has proposed a limited test for NAPLs. The State has recommended expanding the test. Since installation of a cap will not result in the remediation of NAPLs, their presence must be determined in advance, so that, if warranted, appropriate remediation methods will be implemented prior to cap construction.

Response: *The Navy has conducted an extensive subsurface investigation of the McAllister Point Landfill site, consisting of the drilling of 22 borings (including 9 monitoring well borings) and the collection of 36 soil boring samples within the Phase I RI. The Phase II Work Plan includes the drilling of 22 additional borings (including 9 monitoring well borings). At an approximate average of four borings per acre, the Navy feels the subsurface evaluation program is comprehensive and yet practical, considering the variability of subsurface conditions which can be found in a landfill environment.*

The Navy understands these locations to be in the vicinity of borings B-3 and B-7, based on verbal comments made at the 25th Technical Review Committee (TRC) meeting and RIDEM comments on the Phase II RI Workplan. At boring B-7, an elevated HNu reading was detected at the 12- to 14-foot interval and a strong garbage odor was also identified. Fill, including wood, plastic and paper was observed in the split-spoon sample from this interval. While chemical analysis of a soil sample from this interval identified the presence of elevated base neutral/acid extractable compounds, the levels were not as high as those detected at boring B-5 and M-3 (MW-3), an area which the Navy has identified as a potential hot spot area. At boring B-3, observed wastes consisted of bricks, styrofoam, rags, plastic, metal debris and cardboard. No significantly elevated HNu readings were detected (maximum of 80 ppm). Similarly, chemical analysis of soil samples from this boring did not exhibit significantly elevated contaminant levels, with the exception of bis(2-ethylhexyl)phthalate detected from the 22- to 24-foot interval. Although the Navy does not agree with RIDEM's interpretation of these two areas as additional potential hot spot areas, the Navy has agreed to expand the scope of the soil gas investigation to include these two areas.

The Navy has proposed conducting a NAPLs assessment using an oil/water interface probe. The assessment would be conducted on selected Phase I and Phase II RI monitoring wells which have exhibited signs of potential contamination (e.g., significant VOC levels, petroleum-like odors or staining, observed petroleum product) or near wells (e.g., MW-5) in which the presence of NAPLs has been documented. The Navy has informally provided RIDEM with a table listing the specific well locations.

Comment 3: The State concurs with the Navy's current sampling event which will aid in characterizing the sediments and biota adjacent to the site. The results of this sampling effort will be evaluated in the assessment of the ecological impacts and determine whether the sediments require remediation. However, the State is concerned that if sediments are found to be contaminated, then the appropriate investigations to determine the extent of contamination will not be completed in time to allow for the placement of these sediments under the cap.

Response: *The selected remedy includes additional studies to determine the nature, extent and location of near-shore sediments which may have been affected by site-related contamination and whether they will*

be addressed by a separate remedial action or excavated and consolidated under the landfill cap. An ecological assessment of the impacts of landfill leachate will be conducted as part of the remedial design studies and will be presented within a separate ecological assessment report which is included as a design submittal. Since, as noted, sampling of sediments and biota adjacent to the site was being conducted at the time of the public meeting, the Navy is confident that the State's concerns can be addressed within the remedial design period.

Comment 4: Currently, it is believed that a portion of the site lies within the flood plain of the bay. In addition, the cap will be exposed to flooding and wave action resulting from hurricanes and other storm events. The Navy has proposed performing a modeling study on the site to optimize cap design for storm events. The State has made a number of additional suggestions on ways to improve the cap design, such as, recommending that the Navy investigate the use of geogrids or geotecs type materials to stabilize the vegetative layer. The State has also proposed that the Navy investigate cap construction efforts for other sites located adjacent to large surface water bodies as well as the practices required at other coastal states. The State believes that this effort will be cost effective and will prove to be beneficial.

Response: As stated within the Focused Feasibility Study's description of the Subtitle C capping alternative, if determined to be necessary during the design analysis, geogrid-type materials may be used to provide extra stabilization of the vegetative layer of the cap. The Army Corps of Engineers' Shore Protection Manual, an accepted manual of practice, will provide the basis for development of shore protection features. Shore protection methodologies for the landfill will apply time-tested design and construction methodologies used to protect similar shoreline features. Due to the increased hazards associated with the failure of a slope protection system on a landfill compared to normal shoreline features, appropriate safety factors will be utilized in the design. As noted in the response to the Coastal Resources Management Council's Comment 3, stone armor protection will extend above the design storm water level plus the wave run-up from the design wave. The cap will not be directly exposed to wave action from the design coastal storm event.

Comment 5: A second concern is that in order to achieve the desired slopes at the landfill, either the existing slopes will have to be cut back or portions of the shoreline, and potentially the bay, will have to be filled in. The State has recommended that the Navy make every effort to avoid filling in the bay in order to achieve the desired slopes.

Response: As stated within the Focused Feasibility Study and within Section 8.2 of the Proposed Plan, the slope protection features of the preferred alternative could not extend beyond the toeprint of the existing landfill in the area along Narragansett Bay, in accordance with the Clean Water Act Section 404. If during the design process it is determined that the cap cannot be constructed in accordance with these requirements, mitigation of the impacted wetlands will be required.

Comment 6: As indicated by the Navy, landfill gas control will probably be initiated at the site. The State has recommended that the Navy investigate the potential to place the gas extraction wells in areas of known hot spots. These wells would then serve two functions: (1) collect landfill gases, (2) remove contaminants from the site through vapor extraction.

Response: During the landfill gas management system design process, the design of the landfill gas extraction components will be determined. The management system could consist of a passive system (e.g., passive lateral trenches and vents) or an active extraction system (e.g., extraction wells and exhaust blowers). If an active gas management system is required, the location of potential hot spot areas

which may benefit from a venting system will be considered in the development of landfill gas extraction well locations.

Comment 7: The State feels that both the State Solid Waste Regulations and the State Groundwater Regulations apply to the site. The Solid Waste Regulations may be considered to be more stringent than the requirements listed under RCRA Subtitle C under certain interpretations. The Groundwater Regulations have Preventive Action Limits which are stricter than Federal Maximum Contaminant Levels and allow for action to be taken at an earlier stage. The State will recommend that both of these regulations be included in the Proposed Plan for the site.

Response: *The RCRA Subtitle C capping requirements are relevant and appropriate to site closure, since the wastes disposed of at the site are sufficiently similar to known, listed RCRA wastes. However, in response to the State's comment, the Navy has determined that Section 14.12 of the RI Rules and Regulations for Solid Waste Management Facilities is also relevant and appropriate because the requirement that the landfill cap meet a maximum remolded permeability coefficient of 1×10^{-7} could be considered more stringent than the RCRA Subtitle C capping requirements. In response to the State's comment, the Navy has added the permeability standards of Section 14.12 of the RI Rules and Regulations for Solid Waste Management Facilities to the list of ARARs for this operable unit. Please note that the Navy will not necessarily comply with the specific design requirements of the RI Solid Waste Management Facility Rules and Regulations, but the cap design selected to best suit the constraints imposed by the location and other site-specific considerations of the landfill will meet the permeability performance standard set forth in Section 14.12.*

Since the proposed remedial action addresses source control and does not address ground water contamination, the State Ground Water Regulations are not considered to be applicable to the remedial action. Ground Water Regulations will be applicable to the evaluation of ground water quality in the subsequent evaluation of potential ground water remedial requirements for this site. A long-term ground water monitoring plan will be developed in accordance with the monitoring criteria set forth in the State Rules and Regulations for Hazardous Waste Management.

REMEDIAL DESIGN/REMEDIAL ACTION CONCERNS

The remedial design/remedial action concerns voiced during the public comment period are summarized below. The specific comments and Navy responses were provided in the previous section.

- Minimization of rips or tears during installation of the geomembrane barrier;
- Design of the landfill gas management system
 - Will landfill gas treatment be required?
 - What amount of gas will be emitted?
 - Can the landfill gas extraction system also provide venting of hot spot areas?
- Prevention of contaminant migration to the bay and limitation of tidal impacts on the landfill
- Schedule for additional studies relative to incorporation of associated remedial design considerations within the landfill cap design

- **Design of slope stabilization along the seaward side of the site to protect the slope from flooding and wave action**
- **Reconstruction of slopes along the seaward side of the site within the existing toeprint of the landfill, to the greatest extent possible (i.e., minimization of any potential filling of the bay)**

**ATTACHMENT A TO
APPENDIX B
TRANSCRIPTION OF PUBLIC HEARING
HELD AUGUST 25, 1993
Site 01 - McAllister Point Landfill
NETC - Newport, Rhode Island**

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

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PROCEEDINGS AT HEARING

IN RE: PROPOSED PLAN

McALLISTER POINT LANDFILL

* * * * *

August 25, 1993

7:00 p.m.

Gaudet Middle School

Middletown, Rhode Island

BEFORE: CAPTAIN W.H. RIGBY, U.S. Navy

Francisco LaGreca, U.S. Navy

Robert Smith, TRC Environmental Consultants

James Peronto, TRC Environmental Consultants

Jean M. Olivo, TRC Environmental Consultants

Andrew Miniuks, USEPA

Greg Fine, RIDEM

IRONS & ASSOCIATES

(401) 861-0909

1 CAPT. RIGBY: We ar now going to
2 begin the formal public hearing. All comments
3 will be transcribed by our court reporter. I
4 would remind you that your comments and questions
5 will not be answered tonight but will be recorded
6 tonight and addressed in the summary portion of
7 the record for the decision of this site. Before
8 making your comments, we ask that you clearly
9 state your name and affiliation.

10 MR. ANGELL: My name is Warren
11 Angell, also with the State of Rhode Island DEM,
12 I'm the section supervising engineer for all
13 federal facilities and all Superfund sites in the
14 State of Rhode Island. Before I make a statement
15 for the record, I want to clarify or add to a
16 couple of questions that people asked.

17 One, someone asked if the type of if we
18 have encountered this type of landfill in the
19 state. Although we haven't encountered any in the
20 state on the water's edge, we have put a cap on a
21 hazardous waste Superfund site, the Western Sand
22 and Gravel Landfill and that cap seems to be
23 holding up pretty well and it's not on the coast
24 but it's definitely a working cap.

1 Also, I don't remember anyone alluding to
2 the fact that another specific concern we had
3 with this landfill was the potential munitions
4 being buried there. That is definitely a very
5 specific public health and worker safety concern
6 of ours. I'm not sure anyone alluded to if we
7 could do any type of nonintrinsic investigation
8 without having to sink a backhoe or some type of
9 well into this landfill, that's certainly our
10 first option, so that's just something to note.
11 Some people alluded to specific design criteria we
12 may have encountered.

13 For the record, as Paul Kulpa has
14 mentioned, the DEM tentatively concurs with the
15 remedy as proposed by the Navy for this Operable
16 Unit 1 of the McAllister Point Landfill. The
17 department has been actively involved in all
18 stages of the review for the McAllister Point
19 Landfill site including the investigation of this
20 operable unit. Department personnel have
21 conducted a thorough review of the Phase 1
22 Remedial Investigation and Focused Feasibility
23 Study as well as other technical documents
24 generated in the proposed plan. This is probably

1 clearly evident by Paul Kulpa and Greg Fine also
2 described in more detail what our involvement was.

3 As a result of our review of the proposed
4 plan, the state will be providing written comment
5 letters to the Navy that includes in detail all
6 our remaining concerns that the state has
7 regarding the preferred alternative. There has
8 been correspondence already delivered to the Navy
9 over the past year, year and a half, and that all
10 will be in the administrative record.

11 As point a clarification, EPA has informed
12 me that these technical documents in the
13 administrative record are only there at the Navy
14 base, they are not available at the libraries.
15 You might want to touch upon that to clarify that
16 after I'm done.

17 This evening I would like to outline some
18 of those concerns. Our outstanding concerns were
19 again conveyed and again detailed by Paul Kulpa
20 and they will be forthcoming in correspondence as
21 a matter of formality. Once again, as we
22 previously stated, the state supports the concept
23 of installing a multi layered cap at McAllister
24 Point Landfill for source control. However, du

1 to th natur of the site and the fact that Phase
2 II RI has not been conducted at the site as of
3 yet, the state believes our concerns as were
4 presented by Paul must be addressed by the Navy
5 prior to initiation of cap construction, and th
6 reasons for that were pretty well conveyed and
7 were also raised by yourselves. In short, our
8 concerns are with the ground that and the central
9 location of the landfill.

10 Finally, the state believes that both th
11 State Solid Waste Regulations and the State Ground
12 Water Regulations are applicable regulations to
13 the site. The State Solid Waste Regulations may
14 be considered to be more stringent than the
15 requirements listed under RCRA Subtitle C, under
16 certain interpretations I won't go into in detail
17 but we will be delivering correspondence to the
18 Navy and EPA explaining how we perceive that to be
19 the case.

20 Also our State Ground Water Regulations
21 have Preventative Action Limits that we believe
22 are stricter than the Federal Maximum Contaminant
23 Levels and allow for action to be taken at an
24 earlier stage. The state will recommend that both

of these regulations be included in the proposed plan for the preferred alternative for the site.

In conclusion, we believe that the concerns addressed must be addressed as it will affect remedial alternatives for Operable Unit 1, Source Control, and forthcoming remedy for Operable Unit 2, Management of Migration. Construction of the cap must, by law, commence within 15 months of ROD signature, which is particularly, this is the reason why we need for this investigation to be gathered expediently. Possible remedial alternatives for the site such as the pumping and treating of groundwater beneath the site, the excavation or remediation of hot spots at the site, and the potential placement of contaminated sediments beneath the cap obviously will both be affected and effect the design of the cap. Therefore, it is critical that these investigations be conducted in a timely manner so that appropriate remedial measures can be taken.

The Navy has indicated that they will make every effort to provide the regulatory community with the appropriate information on time and they have, they have indicated that this evening as

1 w ll. I think these investigations are crucial to
2 both our Unit 1 and 2 and the State will recommend
3 that language will be included to address thes
4 issues.

5 Finally, the state views the forthcoming
6 Record of Decision as a significant milestone in
7 moving towards a comprehensive, full site remedy
8 for the McAllister Point Landfill. In addition,
9 as Paul alluded to, there are at least two oth r
10 Naval landfills adjacent to the bay which are
11 scheduled for remedial action. Efforts undertaken
12 at McAllister Point Landfill will prove to be
13 useful for remedial activities taken at those
14 sites.

15 That concludes what we consider to be our
16 major concerns. As I previously mentioned, we
17 will be providing the Navy with a detailed comment
18 letter, copies of this letter will be forwarded to
19 the appropriate local representatives and will
20 also be entered into the administrative record.
21 Thank you.

22 TIMOTHY BUCKLEY, professional
23 engineer, resident of Newport. I would like to
24 compliment the Navy on the job they are doing and

1 I agr that the cap is need d. I would like to
2 see in hot spots, some type of in situ remediation
3 such as R.F. to eliminate any potential hazards
4 from precipitating into the ground water.

5 MR. RIGBY: Any further comments?

6 WILLIAM BURNS, the Town of
7 Middletown, Rhode Island, representing the
8 Conservation Commission for the Town of
9 Middletown. Yesterday, I saw a boat about a
10 hundred yards off shore from the site, on the
11 southern side of the landfill. I hope that that
12 was TRC doing research. Which brings me to my
13 point of mussels and clams. I would like to see
14 it expanded to the benthos type of dwellers. The
15 lobsters are abundant in that rocky area, and of
16 course we encourage lobsters to live in that area.
17 If you could expand your sampling into that typ
18 of benthos creature, eals, another example.

19 In another month, the railroad is running a
20 coastal cleanup the 18th of September, and lik
21 the past two years, people will be let off trains
22 to pick up debris along the coastal area, and that
23 area will probably be one of the areas that people
24 will drift into. I can approach the Navy base

1 from any direction and s a sign that says
2 "Government Property, No Trespassing." That could
3 be from Gate 1, maybe up to Gate 17. As I go down
4 the Burma Road, I look and I see a sign that says
5 "Government Property, No Trespassing". I don't
6 think that's enough, especially since we've
7 identified the potential of a hazardous site, a
8 candidate for Superfund money.

9 Your alternative 2, I think it was,
10 identified as signage and fence perimeter. The
11 slides I saw this evening showed no signs from the
12 water. People in boats not familiar with the area
13 could land there and pick up shells and things
14 like that because they are funny looking.

15 Ground water is another concern. I know
16 that cap is going to infiltrate the surface water,
17 ground water, I think has been well-defined this
18 evening, and it also is a concern of mine. Ground
19 water is not being used in a residential area, but
20 an almost abutting neighbor is the golf course,
21 and if they start to use aquafers to water their
22 grass, you could create a zone of convergence and
23 the ground water will shift from the flow east to
24 west, and maybe north and south. I would like you

1 to tak that into consideration. Thank you.

2 JUNE GIBBS, State S nator for
3 District 48, and I would like to reiterate
4 something that I said earlier in a formal setting
5 and that is that I would hope that wherever
6 possible the University of Rhode Island would be
7 involved in all possible aspects and use be mad
8 of the expertise of the faculty and the faciliti s
9 in the appropriate departments. I think we have a
10 vast resource there and I think not only should
11 you tell them about it, but you ought to try and
12 involve them in every way you can in solving this
13 problem.

14 MR. RIGBY: Are there further
15 comments?

16 MR. SILVA: I'll just say, Robert
17 Silva, I'm an attorney, I represent the
18 Wanumetonomy Golf and Country Club, Inc.. To
19 underscore what Bill has just mentioned, presently
20 the club is actively engaging in the location of
21 well water on site, to date a half dozen to a
22 dozen wells. They will be looking towards using
23 that water for fairway use and to water the
24 course, which is with the exception of two to

1 thr e fairways not subj ct to watering of th
2 fairways, only greens and tees are watered. I
3 don't know much about the hydrology of things, but
4 I do feel that you ought to know that that program
5 has finally been put into place and presumably
6 accelerated by this summer's drought will be
7 continued until the course will be self-suffici nt
8 in using water from the underground aquafers that
9 are available to water the fairways as well.

10 Is it possible to ask questions, even
11 though we don't get answers? I missed the
12 informal portion of the program and I didn't ask
13 the question, but I presume that the alternative
14 that is being suggested, Number 4, has a price tag
15 of something in the order of \$8,000,000. I assume
16 that that money will be from CERCLA and not any
17 state moneys. I pose that as a question. I would
18 like to know whether or not the state is involved
19 with any liability or responsibility.

20 Also, I note that there was an effort to
21 identify sites which has been going on since 1983
22 at the particular location of the Naval
23 installation, and in my capacity as Chairman of
24 the Middletown Economic Advisory Committee,

TABLE C-3 (Continued)
FEDERAL ACTION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARAR
<u>Capping</u>	Subtitle C Requirements (Con't): · 40 CFR 264.301-264.310; Subpart N - Landfill Requirements	Relevant and Appropriate	Placement of cap over hazardous waste requires a cover designed and constructed to comply with regulations. Installation of final cover to provide long-term minimization of infiltration. Restricts post-closure use of property as necessary to prevent damage to cover.	Cap design will meet regulatory requirements. Cap maintenance will be attended to. Closure and post-closure substantive requirements will be complied with.
	· RCRA Proposed Rule 52 FR 8712 Proposed Amendments for Landfill Closures	To Be Considered	Provides an option for the application of alternate closure and post-closure requirements based on a consideration of site-specific conditions including exposure pathways of concern.	Cap and post-closure monitoring will be designed taking into account exposure pathways of concern.
	· EPA Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments (EPA 530-SW-89-047)	To Be Considered	EPA Technical Guidance for landfill covers. Presents recommended technical specifications for multilayer landfill cover design.	Cap construction should conform to these standards
	<i>Migratory Bird Treaty Act</i> (16 U.S.C. 703-712)	Applicable	Prohibits hunting, possessing, killing, or capturing of migratory birds, birds in danger of extinction, and those birds' eggs or nests.	Since construction activities during the breeding season may "take" birds or their nests, actions must be taken to avoid destroying nests during breeding season. Phase II environmental assessment will determine if migratory birds live in or around the landfill area.
	Clean Water Act Section 404 (40 CFR 230.10) Requirements for Discharge of Dredged or Fill Material and Rivers and Harbors Act (Section 10) Prohibition of Wetland Filling	Applicable	Prohibits the discharge of dredged or fill material to waters of the United States unless no other practical alternatives are available which pose less of an adverse impact on the aquatic ecosystem or if it causes significant degradation of the water. Rivers and Harbors Act prevents filling of a navigable water.	Applicable to the construction of a cap and associated shoreline protection along Narragansett Bay. If during the design process it is determined that cap construction cannot be limited to areas within the toeprint of the existing landfill, mitigation of any impacted wetlands will be required and a mitigation plan will be developed and distributed for public comment prior to implementation.

TABLE C-3 (Continued)
FEDERAL ACTION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARAR
<u>Venting</u>	Clean Air Act (40 CFR 50) New Source Performance Standards (NSPS) Proposed Subpart WWW 56 FR 24468- 24528 (5/30/91)	To Be Considered	Requires Best Demonstrated Technology (BDT) for new sources, and sets emissions limitations. Proposed Subpart WWW sets a performance standard for non-methane organic compounds (NMOC) emissions of 150 Mg/yr (167 tpy) for existing municipal solid waste landfills.	These standards should be considered in the design of a landfill gas management system.
	Clean Air Act (40 CFR 61) National Emissions Standards for Hazardous Pollutants (NESHAPS)	To Be Considered	Establishes emissions limitations for hazardous air pollutants and sets forth regulated sources of those pollutants.	Although EPA has not promulgated final Maximum Achievable Control Technology (MACT) standards for municipal landfills, the lead agency should use air control technology to control emissions of hazardous air pollutants. MACT standards prescribe technology that is used by the best 12% of industries in the source category.
	Clean Air Act, Section 5 171 through 178, 42 USC §§ 7471-7478 (Requirements for Non-Attainment Areas)	Applicable or Relevant and Appropriate (Depending on Modelling Results)	RI has adopted State Implementation Plan (SIP) requirements approved and enforceable by EPA which meet the NSR requirement of the CAA. These provisions require that new or modified major sources of VOCs, defined as a source which has the potential to emit 25 tons per year, install equipment to meet Lowest Available Emissions Rate (LAER), which is set on a case-by-case basis and is either the most stringent emissions limitation contained in any SIP for that category or source or the most stringent emissions limitation which is achieved for the source. NSR requirements apply to non-attainment pollutants, which are VOCs and NO _x in RI.	Monitoring will be conducted to determine if the requirements of this standard are applicable and relevant and appropriate based on the emissions levels and on the need to be protective of human health and the environment.

TABLE C-3 (Continued)
FEDERAL ACTION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARAR
<u>Venting</u>	Clean Air Act, Section 5 160 through 169A - Prevention of Significant Deterioration Provisions	Applicable or Relevant and Appropriate (Depending on Modelling Results)	RI has adopted SIP requirements approved and enforceable by EPA which meet the Prevention of Significant Deterioration (PSD) requirements of the CAA. These provisions require that new or modified major sources of VOCs (defined as a source which has the potential to emit 25 tons/year) install equipment to meet Best Available Control Technology (BACT). PSD requirements apply to attainment pollutants, which are SO ₂ , CO, lead and particulates in Rhode Island.	Monitoring will be conducted to determine if the requirements of this standard are applicable or relevant and appropriate based on the emissions levels.
<u>Drainage</u>	Clean Water Act (40 CFR 122-125) National Pollutant Discharge Elimination System (NPDES) Permit Requirements	Applicable	Permits contain applicable effluent standards (i.e., technology-based and/or water quality-based), monitoring requirements, and standards and special conditions for discharges, including storm water discharges from land disposal facilities which have received industrial waste from industrial facilities.	Storm water drainage improvements would be designed to provide compliance with the substantive requirements of these regulations and drainage would be monitored in compliance with these regulations.

TABLE C-4
STATE ACTION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARARS
<u>Capping</u>	RI Hazardous Waste Management Act of 1978 (RIGL 23-19.1 et seq.) Hazardous Waste Management Rules and Regulations and Proposed Amendments:	Relevant and Appropriate	Rules and regulations for hazardous waste generation, transportation, treatment, storage and disposal.	Substantive requirements applicable to closure will be met and adhered to on-site.
	• Section 7	Relevant and Appropriate	Restricts location, design, construction, and operation of landfills from endangering ground water, wetlands or floodplains	Landfill cap will be constructed so as to prevent contamination of ground water, wetlands, or floodplains.
	• Section 8	Relevant and Appropriate	Outlines requirements for ground water protection, general waste analysis, security procedures, inspections and safety.	Remedial actions will comply with substantive portions of this section applicable to landfill closure.
	• Section 9	Relevant and Appropriate	Outlines operational requirements for treatment, storage and disposal facilities.	Remedial actions will comply with substantive portions of this section applicable to landfill closure.
	• Section 10	Relevant and Appropriate	Outlines design and operations requirements for land disposal facilities, including landfills.	Remedial actions will meet all non-location specific requirements of this section applicable to landfill closure.
	RI Solid Waste Management Facilities Rules and Regulations • Section 14.12	Relevant and Appropriate	Sets performance standard for landfill covers of maximum remolded permeability coefficient of 1×10^{-7} cm/sec.	Design of landfill cover will meet this requirement.

TABLE C-4 (Continued)
STATE ACTION-SPECIFIC ARARs AND TBCs
RECORD OF DECISION
McALLISTER POINT LANDFILL
NETC - NEWPORT
RCRA SUBTITLE C MULTI-LAYER CAP
WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARARS
<u>Venting</u>	RI Clean Air Act (RIGL, Title 23, Chapter 23) General Air Quality and Air Emissions Requirements			
	RI Air Pollution Control Regulations, RI Dept. of Health, Div. of Air Pollution Control, effective 8/2/87, amended 5/20/91			
	- Regulation No. 1 - Visible Emissions	Applicable	No air contaminant emissions will be allowed for more than 3 minutes in any one hour which are greater than or equal to 20% opacity.	Air emissions from remedial actions will meet emission levels in regulation.
	- Regulation No. 5 - Fugitive Dust	Applicable	Requires that reasonable precaution be taken to prevent particulate matter from becoming airborne.	On-site remedial actions will use good industrial practices to prevent particulate matter from becoming airborne.
	- Regulation No. 7 - Emissions Detrimental to Person or Property	Applicable	Prohibits emissions of contaminants which may be injurious to human, plant or animal life or cause damage to property or which reasonably interfere with the enjoyment of life and property.	All emissions from landfill vents will meet this requirement or gas treatment will be required.
	- Regulation No. 15 - Control of Organic Solvent Emissions	Applicable	Limits the amount of organic solvents emitted to the atmosphere.	If emissions from landfill gas vents exceed limits in this regulation, emissions controls will be designed and implemented to meet these requirements.
	- Regulation No. 17 - Odors	Applicable	Prohibits the release of objectionable odors across property lines.	No remedial action or air emissions will emit objectionable odors beyond the facility boundary, as practicable.
	- Regulation No. 22 - Air Toxics	Applicable if air emissions contain regulated substances	Prohibits the emission of specified contaminants at rates which would result in ground level concentrations greater than acceptable ambient levels or acceptable ambient levels with LAER, as set in the regulation.	If necessary to meet these standards, air emissions control equipment will be designed for landfill gas emissions control.

TABLE C-4 (Continued)
 STATE ACTION-SPECIFIC ARARs AND TBCs
 RECORD OF DECISION
 McALLISTER POINT LANDFILL
 NETC - NEWPORT
 RCRA SUBTITLE C MULTI-LAYER CAP
 WITH SURFACE AND INSTITUTIONAL CONTROLS

AUTHORITY/ ACTION	REQUIREMENT	STATUS	SYNOPSIS	ACTION TAKEN TO MEET ARARS
<u>Drainage</u>	RI Water Pollution Control Act			
	· RI Water Quality Regulations for Water Pollution Control (RIGL 46-12 et seq.)	Applicable	Establishes general requirements and effluent limits for discharge to area waters.	In compliance with these regulations, RIPDES requirements pertaining to storm water discharges will be met.
	· RI Regulations for the Pollutant Discharge Elimination System (RIPDES) (RIGL 46-12 et seq.)	Applicable	Permits contain applicable effluent standards (i.e., technology-based and/or water quality-based), monitoring requirements, and standards and special conditions for discharge, including storm water discharges from land disposal facilities which have received industrial wastes.	Storm water discharge improvements would be designed to provide compliance with these regulations and drainage would be monitored in compliance with these regulations.

APPENDIX D
ADMINISTRATIVE RECORD INDEX
Site 01 - McAllister Point Landfill
NETC - Newport, Rhode Island

APPENDIX D

SECTION I

INTRODUCTION

This document is the Index to the Administrative Record for the Record of Decision for the Naval Education and Training Center (NETC) National Priorities List (NPL) site. Section I of the Index cites site-specific documents, and Section II cites guidance documents used by Navy staff in selecting a response action at Site 01.

Although not expressly listed in this Index, all documents contained in the Record of Decision Administrative Record are incorporated by reference herein, and are expressly made a part of the Administrative Record for the Record of Decision Administrative Record.

The Administrative Record is available for public review at the Naval Education and Training Center in Newport, Rhode Island. Questions concerning the Administrative Record should be addressed to David Sanders, Public Affairs Officer, Naval Education and Training Center, Newport, RI 02841-5000, phone (401) 841-3735.

The Administrative Record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

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DATE	TITLE	AUTHOR	DOC-TYPE
01/01/75	SANITARY LANDFILL DESIGN AND OPERATION	USEPA	REPORT
MAR. 83	FINAL INITIAL ASSESSMENT STUDY, NETC	ENVIRODYN	REPORT
03/15/83	INITIAL ASSESSMENT STUDY	ENVIRODYNE INC.	REPORT
10/27/83	PLAN OF ACTION FOR CONFIRMATION STUDY	LOUREIRO ENG. AS.	WORK PLAN
11/04/83	PLAN OF ACTION FOR CONFIRMATION STUDY	LOUREIRO ENG. AS.	WORK PLAN
01/27/84	SAMPLING AND ANALYSIS OF DRUMS	LOUREIRO ENG. AS.	STUDY
02/28/84	DRAFT REPORT ON VERIFICATION STEP	LOUREIRO ENG. AS.	REPORT
05/08/84	REVISED DRAFT REPORT ON VERIFICATION STEP	LOUREIRO ENG. AS.	REPORT
06/12/84	PLAN OF ACTION FOR CHARACTERIZATION STEP	LOUREIRO ENG. AS.	WORK PLAN
02/15/85	PROGRESS REPORTS FOR CS DEC. 83 - JAN. 85	LOUREIRO ENG. AS.	REPORT
03/13/85	DRAFT REPORT ON CHARACTERIZATION STEP	LOUREIRO ENG. AS.	REPORT
07/26/85	EXECUTIVE SUMMARY ON CHARACTRIZATION STEP	LOUREIRO ENG. AS.	REPORT
11/26/85	DRAFT CONFIRMATION STUDY REPORT VOL. 1	LOUREIRO ENG. AS.	REPORT
11/26/85	EXECUTIVE SUMMARY FOR CONFIRMATION STUDY	LOUREIRO ENG. AS.	
04/18/86	DRAFT CONFIRMATION STUDY REPORT	LOUREIRO ENG. AS.	
05/15/86	CONFIRMATION STUDY REPORT ON H/W SITES VOL 1&2	LOUREIRO ENG. AS.	REPORT
05/15/86	EXECUTIVE SUMMARY FOR CONFIRMATION STUDY	LOUREIRO ENG. AS.	REPORT
05/15/86	CONFIRMATION STUDY REPORT VOL.- 1	LOUREIRO ENG. AS.	REPORT
08/25/88	HAZARD RANKING SCORE PACKAGE	RUSSELL DEVAN V.	HRS
01/01/88	McCALLISTER PT. SEDIMENT & MUSSEL SAMPLING	WATER QUALITY	REPORT
08/01/88	CERCLA COMPLIANCE WITH OTHER LAWS	USEPA	MANUAL
10/01/88	GUIDANCE CONDUCT RI/FS STUDIES UNDER CERCLA	USEPA	GUIDANCE
03/01/89	RI / FS WORK PLAN	TRC - ECI	WORK PLAN
07/01/89	FINAL COVERS ON HAZWASTE LANDFILLS AND SURFACE	USEPA	GUIDANCE
08/01/89	CERCLA COMPLIANCE WITH OTHER LAWS MANUAL:	USEPA	GUIDANCE
	PART II. CLEAN AIR ACT AND OTHER STATUTES AND		
	STATE REQUIREMENTS.		
08/01/89	REQUIREMENTS FOR HAZARDOUS WASTE LANDFILL	USEPA	GUIDANCE
	DESIGN CONSTRUCTION AND CLOSURE.		
02/23/90	RI / FS WORK PLAN - SUMMARY SHEETS	TRC - ECI	WORK PLAN
Jul-90	COMMUNITY RELATIONS PLAN (SEE NETC SITE FILES)	NETC	WORK PLAN
09/18/90	RI/FS WORK PLAN-EPA COMMENTS	USEPA	LETTER
01/24/91	DRAFT RI REPORT-RIDEM COMMENTS	RIDEM	LETTER
02/01/91	CONDUCTIONG REMEDIAL INVESTIGATIONS/FEASIBILITY	USEPA	GUIDANCE
	STUDIES FOR CERCLA MUNICIPAL LANDFILL SITES		

DATE	TITLE	AUTHOR	DOC-TYPE
05/01/91	DESIGN AND CONSTRUCTION OF RCRA/CERCLA FINAL COVERS	USEPA	GUIDANCE
11/01/91	RI TECHNICAL REPORT VOL. - 1	TRC - ECI	REPORT
11/01/91	RI FIGURES AND TABLES VOL.- 1	TRC - ECI	REPORT
11/20/91	DRAFT COMPARISON CDM FPC'S ANALYTICAL DATA	CDM-FED PROGRM	STUDY
11/01/91	RI APPENDICES VOL. - 1	TRC - ECI	REPORT
11/01/91	RI HUMAN HEALTH RISK ASSESSMENT VOLUME- 2	TRC - ECI	REPORT
11/01/91	RI HUMAN RA APPENDICES VOL. - 2	TRC - ECI	REPORT
01/27/92	EPA REVIEW COMMENTS ON DRAFT RI / FS	EPA	LETTER
01/24/92	DRAFT NETC REMEDIAL INVESTIGATION REPORT	RIDEM	LETTER
02/06/92	EPA FINAL COMMENTS DRAFT RI REPORT	USEPA	LETTER
07/ 08/92	FEDERAL FACILITY AGREEMENT (SEE NETC SITE FILES)	NETC	
04/28/92	REVIEW COMMENTS DRAFT FINAL REPORT	TRC - ECI	LETTER
07/24/92	DRAFT ECO RISK ASSESSMENT	TRC - ECI	REPORT
12/01/92	PHASE II RI/FS WORK PLAN-EPA COMMENTS	USEPA	LETTER
12/02/92	DRAFT RI/FS PHASE II WORK PLAN COMMENTS	RIDEM	LETTER
03/08/93	ATSDR AND COMMENTS	USDH	REPORT
03/01/93	PHASE - 2 RI / FS WORK PLAN	TRC	REPORT
03/03/93	INITIAL RELEASE COMMENTS-ATSDR	USEPA	LETTER
03/19/93	FOCUSED FEASIBILITY STUDY FOR MCALLISTER POINT USEPA SOURCE CONTROL CONCURRENCE-CAPPING	USEPA	LETTER
06/01/93	DRAFT PROPOSED PLAN SITE - 01 McALLISTER POINT	TRC	REPORT
07/02/93	EPA COMMENTS ON PROPOSED PLAN, MCALLISTER P.	USEPA	LETTER
07/19/93	RIDEM COMMENTS ON DRAFT PROPSD PLAN FOR SITE - 01, McALLISTER POINT LANDFILL	RIDEM	LETTER
07/19/93	RIDEM COMMENTS ON DRAFT FOCUSED FEASIBILITY STUDY	RIDEM	LETTER
07/27/93	DRAFT PROPOSED PLAN SITE-01 MCALLISTER POINT LANDFILL-CONDITIONAL CONCURRENCE-RIDEM	RIDEM	LETTER
08/03/93	RIDEM COMMENTS TO EPA - DECLINE AWARENESS OF RARE SPECIES AND PLANTS	RIDEM	LETTER
08/03/93	PRELIM. WETLAND DELINEATION	MENZI - CURA & AS.	
08/12/93	EPA OUTSTANDING TECH. ISSUES W/RI/FS WORKPLAN	USEPA	LETTER
08/17/93	OUTSTANDING TECH. ISSUES W/PHASE-2 RI/FS WORKPLAN	USEPA	LETTER
08/31/93	EPA COMMENTS ON DRAFT (ROD) FOR McALLISTER POINT	USEPA	LETTER
09/21/93	EPA REVIEW OF DRAFT (ROD) FOR McALLISTER POINT	USEPA	LETTER
09/02/93	RIDEM COMMENTS ON DRAFT PROPOSED PLAN	RIDEM	LETTER

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DATE	TITLE	AUTHOR	DOC-TYPE
09/24/93	RECORD OF DECISION FOR McALLISTER POINT	RIDEM	LETTER
09/28/93	RECORD OF DECISION FOR McALLISTER POINT	USEPA	LETTER
CURRENT	ARMY CORPS ENGINEERS SHORE PROTECTION MANUAL	ARMY CORPS ENG.	MANUAL

APPENDIX D

SECTION II

GUIDANCE DOCUMENTS

EPA guidance documents may be reviewed at EPA Region I, Boston, Massachusetts.

General and Site-Specific EPA Guidance Documents

1. "National Oil and Hazardous Substances Pollution Contingency Plan", Code of Federal Regulations (Title 40, Part 300), 1990.
2. U.S. Environmental Protection Agency. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as Amended October 17, 1986.
3. U.S. Environmental Protection Agency. Community Relations in Superfund, A Handbook (Interim Version). (EPA/540/G-88/002), June 1988.
4. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) (Interim Final) (EPA/540/G-89/004, OSWER Directive 9355.3-01), October 1988.

APPENDIX E
RIDEM LETTER OF CONCURRENCE
Site 01 - McAllister Point Landfill
NETC - Newport, Rhode Island



State of Rhode Island and Providence Plantations
Department of Environmental Management
Office of the Director
9 Hayes Street
Providence, RI 02908

OPTIONAL FORM 89 (7-90)		FAX TRANSMITTAL		# of pages 2	
To Brad Wheeler		From A. Minichis			
Dupl. Agency NETC		Phone # 617/578-9614			
Fax # 401/841-4559		Fax # -9662			
NSN 7540-01-317-7360		5099 101		GENERAL SERVICES ADMINISTRATION	

24 September 1993

Paul Keough
Acting Regional Administrator
Environmental Protection Agency, Region 1
John F. Kennedy Federal Building
Boston, MA 02203-2211

RE: Record of Decision for the McAllister Point Landfill,
Naval Education Training Center (NETC), Newport, Rhode Island.

Dear Mr. Keough:

On 23 March 1992, the State of Rhode Island entered into a Federal Facilities Agreement with the Department of the Navy and the Environmental Protection Agency. According to Section 17.3 of said agreement, the State of Rhode Island offers its concurrence with the selected remedy detailed in the September 1993 Record of Decision for the Source Control Remedial Action for Site 01 - McAllister Point Landfill at the Naval Education and Training Center located in Newport, Rhode Island. This concurrence is based upon all aspects of the abovementioned Record of Decision being adequately addressed and implemented during design, construction and operation of the remedy.

The Department wishes to specifically emphasize the following aspects of the Record of Decision:

- This source control remedial action is the first of two operable units for the site. A Record of Decision will be issued for the management of migration operable unit.
- The management of migration operable unit will consider clean up levels and remedial options for contaminated groundwater, leachate, landfill gas, contaminated sediments and potential hot spot areas including non-aqueous phase liquids.
- The Record of Decision will be issued for the management of migration operable unit sufficiently prior to the commencement of construction of the source control operable unit remedial action so that appropriate changes, if necessary, may be implemented in the final remedial design for the first operable unit.

P. Keough

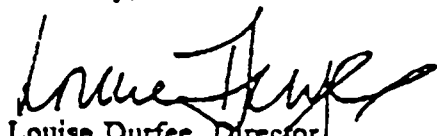
24 September 1993

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- The remedy as proposed and implemented must ensure compliance with all applicable or relevant and appropriate State and Federal statutes, regulations and policies.
- This remedy must identify institutional controls applicable throughout the remedial action project life, which are protective of human health. Also, in the event that the remedial risk goals cannot be achieved, long-term controls must be instituted to prevent an unacceptable risk to human health and the environment.
- Regarding the final design of the slope protection system, the Record of Decision references the Army Corps of Engineers' Shore Protection Manual which does not appear in the Administrative Record Index or the reference section of the Focused Feasibility Study. As a result, the State has not had sufficient time to locate and review this guidance. However, we view the remedial design phase as an interactive process in which the design staff will work closely with the regulatory agencies in order to assure that the final design addresses the unique engineering considerations for this site.

Finally, the State will continue to participate in the Federal Facilities Agreement and in the review and approval of all phases of the remedial design process.

Sincerely,



Louise Durfee, Director

Department of Environmental Management

cc: James Fester, Associate Director, DEM
Merrill Hohnan, Director, EPA Region I Waste Management Division
Mary Sanderson, Chief, RI Superfund Section
Terrence Gray, Chief, DEM Division of Site Remediation
Claude Cote, Esq. DEM Office of Legal Services
Warren Angell, Supervising Engineer, DEM Division of Site Remediation

TABLE A-5
SUMMARY OF RISK ESTIMATES
SCENARIO 3 - CONSTRUCTION (FUTURE) - ADULT
MCALLISTER POINT LANDFILL

	Average		RME	
	Total HI	Total Cancer Risk	Total HI	Total Cancer Risk
SOIL (a)	0.13	3.7×10^{-6}	2.5	2.3×10^{-5}
Incidental Ingestion of Soil	0.13	3.7×10^{-6}	2.5 (b)	2.2×10^{-5}
Dermal Contact with Soil	0.0014	1.6×10^{-7}	0.011	1.2×10^{-6}
Inhalation of Fugitive Dust	0.00067	1.7×10^{-10}	0.0026	1.1×10^{-9}

(a) Soil to a depth of 12 feet
(b) Antimony: 2.0

= HI > 1.0

TABLE A-6
SUMMARY OF RISK ESTIMATES
SCENARIO 4 - COMMERCIAL/INDUSTRIAL (FUTURE) - ADULT
MCALLISTER POINT LANDFILL

	Average		RME	
	Total HI	Total Cancer Risk	Total HI	Total Cancer Risk
SOIL (a)	0.019	1.4×10^{-5}	0.27	2.1×10^{-4}
Incidental Ingestion of Soil	0.018	1.3×10^{-5}	0.27	2.1×10^{-4} (b)
Dermal Contact with Soil	0.0014	7.4×10^{-7}	0.0032	1.7×10^{-6}
GROUND WATER	1.8	1.8×10^{-3}	13	3.7×10^{-3}
Ingestion of Drinking Water	1.8 (c)	1.8×10^{-3} (d)	13 (c)	3.7×10^{-3} (d)

(a) Surface soil

= Cancer Risk > 1×10^{-4}
or HI > 1.0

(b) Benzo(a)anthracene: 3.8×10^{-5}
Benzo(a)pyrene: 3.2×10^{-5}
Benzo(b)fluoranthene: 3.0×10^{-5}
Benzo(k)fluoranthene: 2.8×10^{-5}
Chrysene: 3.6×10^{-5}
Dibenzo(a,h)anthracene: 1.6×10^{-5}
Indeno(1,2,3-cd)pyrene: 1.8×10^{-5}

(c) Antimony: 0.91 (average) to 6.3 (maximum)
Manganese: 0.31 (average) to 2.1 (maximum)

(d) Arsenic: 1.7×10^{-4} (average) to 5.5×10^{-4} (maximum)
Beryllium: 3.4×10^{-5} (average) to 1.9×10^{-4} (maximum)
Benzo(a)anthracene: 2.2×10^{-4} (average) to 4.0×10^{-4} (maximum)
Benzo(a)pyrene: 2.2×10^{-4} (average) to 4.0×10^{-4} (maximum)
Benzo(b)fluoranthene: 2.2×10^{-4} (average) to 4.0×10^{-4} (maximum)
Benzo(k)fluoranthene: 2.2×10^{-4} (average) to 4.0×10^{-4} (maximum)

TABLE A-7
SUMMARY OF RISK ESTIMATES
SCENARIO 5 - RESIDENTIAL (FUTURE) - CHILD & ADULT
MCALLISTER POINT LANDFILL

	Average				RME			
	Total HI		Total Cancer Risk		Total HI		Total Cancer Risk	
	Child	Adult	Child	Adult	Child	Adult	Child	Adult
SOIL (a)	0.52	0.056	8.6×10^{-5}	4.5×10^{-5}	7.7	0.82	1.3×10^{-3}	7.0×10^{-4}
Incidental Ingestion of Soil	0.51	0.053	8.5×10^{-5}	4.4×10^{-5}	7.7 (b)	0.80	1.3×10^{-3} (c)	7.0×10^{-4} (c)
Dermal Contact with Soil	0.013	0.0027	1.2×10^{-6}	1.2×10^{-6}	0.079	0.016	2.7×10^{-6}	2.8×10^{-6}
Inhalation of Fugitive Dust	0.0013	0.00026	2.5×10^{-8}	2.6×10^{-8}	0.0024	0.00051	1.1×10^{-7}	1.2×10^{-7}
GROUND WATER	9.1	5.0	2.2×10^{-3}	6.0×10^{-3}	64	36	4.5×10^{-3}	1.2×10^{-2}
Ingestion of Drinking Water	9.1 (d)	5.0 (d)	2.2×10^{-3} (d)	6.0×10^{-3} (d)	64 (d)	36 (d)	4.5×10^{-3} (d)	1.2×10^{-2} (d)
Inhalation of Volatiles	0.018	0.0037	9.3×10^{-6}	9.6×10^{-6}	0.10	0.021	1.6×10^{-5}	1.6×10^{-5}

(a) Surface soil

= Cancer Risk > 1×10^{-4}
or HI > 1.0

(b) Antimony: 3.0
Copper: 2.0
Zinc: 1.3

(c) Benzo(a)anthracene: Child: 2.5×10^{-4} and Adult: 1.3×10^{-4}
Benzo(a)pyrene: Child: 2.1×10^{-4} and Adult: 1.1×10^{-4}
Benzo(b)fluoranthene: Child: 2.0×10^{-4} and Adult: 1.0×10^{-4}
Benzo(k)fluoranthene: Child: 1.8×10^{-4} and Adult: 9.5×10^{-5}
Chrysene: Child: 2.3×10^{-4} and Adult: 1.2×10^{-4}
Dibenzo(a,h)anthracene: Child: 1.0×10^{-4} and Adult: 5.3×10^{-5}
Indeno(1,2,3-cd)pyrene: Child: 1.2×10^{-4} and Adult: 6.0×10^{-5}

(d) See Table A-8

TABLE A-8
SUMMARY OF KEY CONSTITUENT-SPECIFIC RISK ESTIMATES FOR INGESTION OF GROUND WATER
SCENARIO 5 - RESIDENTIAL (FUTURE) - CHILD & ADULT
MCALLISTER POINT LANDFILL

	Average				RME			
	Total HI		Total Cancer Risk		Total HI		Total Cancer Risk	
	Child	Adult	Child	Adult	Child	Adult	Child	Adult
INGESTION OF GROUND WATER	9.1	5.0	2.2×10^{-3}	6.0×10^{-3}	64	36	4.5×10^{-3}	1.2×10^{-2}
Antimony	4.6	2.5			32	18		
Arsenic	1.4	0.78			4.4	2.4		
Cadmium	0.25	0.14			2.8	1.6		
Chromium	0.30	0.17			2.5	1.4		
Copper	0.18	0.099			3.9	2.2		
Manganese	1.6	0.88			10	5.8		
Zinc	0.14	0.077			3.0	1.7		
Arsenic			2.1×10^{-4}	5.9×10^{-4}			6.7×10^{-4}	1.8×10^{-3}
Beryllium			4.1×10^{-5}	1.1×10^{-4}			2.3×10^{-4}	6.5×10^{-4}
Vinyl chloride			4.3×10^{-5}	1.2×10^{-4}			8.1×10^{-5}	2.2×10^{-4}
Dichlorobenzidine, 3,3-			2.1×10^{-5}	5.7×10^{-5}			3.8×10^{-5}	1.1×10^{-4}
Benzo(a)anthracene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}
Benzo(a)pyrene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}
Benzo(b)fluoranthene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}
Benzo(k)fluoranthene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}
Chrysene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}
Dibenzo(a,h)anthracene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}
Indeno(1,2,3-cd)pyrene			2.6×10^{-4}	4.9×10^{-4}			7.2×10^{-4}	1.4×10^{-3}

= Cancer Risk > 1×10^{-4}
or HI > 1.0

TABLE A-9
SUMMARY OF LEAD UPTAKE/BIOKINETIC MODEL RESULTS
SCENARIO 5 - RESIDENTIAL (FUTURE) - CHILD
MCALLISTER POINT LANDFILL

	Soil Lead Concentration (ppm)	Mean Blood Lead Concentration (ppm)	% Children w/ Blood Lead Concentration > 10 ug/dl
Mean Soil Lead for Entire Site	99	2.7	0.01
Mean Soil Lead for "Impacted" Zone	634	8.2	27
Maximum Soil Lead for "Impacted" Zone (and Site)	1,980	22	98